2011

THE INFLUENCE OF FAMILY STRUCTURE AND TRANSITIONS ON PARENTING, INCOME, RESIDENTIAL MOBILITY, AND SUBSTANCE INITIATION IN EARLY ADOLESCENCE: A COMPARISON OF CAUCASIAN AND AFRICAN AMERICAN YOUTH

Sally Mays
Virginia Commonwealth University

THE INFLUENCE OF FAMILY STRUCTURE AND TRANSITIONS ON PARENTING, INCOME, RESIDENTIAL MOBILITY, AND SUBSTANCE INITIATION IN EARLY ADOLESCENCE: A COMPARISON OF CAUCASIAN AND AFRICAN AMERICAN YOUTH

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

by

SALLY A. MAYS

Master of Science, Virginia Commonwealth University, 2007
Bachelor of Arts, Washington and Lee University, 2002

Director: Albert D. Farrell
Professor, Department of Psychology

Virginia Commonwealth University
Richmond, Virginia
May, 2011

Acknowledgements

This project was partially supported by a dissertation grant supplied by the Virginia Commonwealth University Graduate School. I would like to thank the members of my committee, Drs. Rosalie Corona, J. Randy Koch, Michael Leiber, and Dace Svikis for their time, effort and insights. I would particularly like to thank the chair of my committee and my research advisor, Dr. Albert Farrell for his guidance, expertise, and generous support not only in this project, but in the long and sometimes demanding experience that is graduate school. He has always had my best interests at heart, and his training has been invaluable. My co-intern Rachel Friendly and all my VCU and Richmond friends, particularly my lovely roommates Amie Bettencourt and Casey Hebert, provided much-needed commiseration, comic relief, and practical solutions. I would also like to thank my fiancé, Chris Mincher, for his patience and encouragement during each stage of this process, and for reminding me (sometimes successfully) not to worry because things always get done one way or another. I'd also like to thank my parents for never failing to ask, "So, are you done with that thing yet?" My family and friends' conviction that I would complete this project was unwavering even when my own was not, and it made all the difference.

Table Of Contents

List of Tables

Page

List of Figures

Page

Abstract

THE INFLUENCE OF FAMILY STRUCTURE AND TRANSITIONS ON PARENTING, INCOME, RESIDENTIAL MOBILITY, AND SUBSTANCE INITIATION IN EARLY ADOLESCENCE: A COMPARISON OF CAUCASIAN AND AFRICAN AMERICAN YOUTH

By Sally Ann Mays, M.S.

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

Virginia Commonwealth University, 2011

Major Director: Albert D. Farrell
Professor, Department of Psychology

The effect of family structure on youth adjustment has received increasing attention as historical trends in single parenting, divorce, remarriage, and cohabitation with partners and extended family members have produced a diverse constellation of structures. African American youth are less likely than Caucasian youth to live in an "intact" family. Links between family structure and a variety of indices of youth adjustment have been established, although a relatively understudied outcome is that of substance initiation, despite its

association with dependence and other negative sequelae. The dynamic effect of transitions has additionally been less studied than the static effect of structure. Differences in family structure and transitions may influence outcomes via parental socialization (monitoring and attachment) as well as strain (residential mobility and changes in income). These mechanisms may operate differently for Caucasian and African American youth, and may partially explain differences in adjustment. Relations between youth adjustment and transitions may be reciprocal in nature, a less often studied premise. This project made use of a nationally representative sample of more than 2,000 adolescents aged 12 to 13 in 1997 assessed across 3 waves. Regression analyses were employed to examine the associations among family structure and transitions, parenting, income, residential mobility, and substance initiation over time. This study found that living in non- two-parent family structures was consistently associated with higher concurrent levels of substance initiation, lower parental monitoring and relationship quality, lower income, and higher residential mobility. The effects of transitions on substance initiation and parenting were less robust than hypothesized, but reinforced the notion that consistently living outside a two-parent family, or consistently living in a single-parent family, is negatively associated with parenting, income, and residential stability over time. Evidence for mediated effects via changes in parenting, residential mobility, and income were significant but small in magnitude, and varied by race, such that they were significant for Caucasian but not African American youth. Partial evidence for reciprocal causality was found. Alcohol initiation at the first wave predicted separations, but marijuana initiation did not. These findings have important implications for parents, clinicians, and policy makers.

The Influence of Family Structure and Transitions on Parenting, Income, Residential Mobility, and Substance Initiation in Early Adolescence: A Comparison of Caucasian and African American Youth

Studies of family structure have comprised a large percentage of all research on family processes in recent decades (see McLoyd, Cause, Takeuchi, & Wilson, 2000). Researchers have been interested in the impact of both structural family variables and family transitions (events that cause family structures to change, including desertion, divorce, cohabitation, and remarriage) on a variety of youth outcomes, both positive and negative.

Running counterpoint to this interest, other researchers (e.g. Hetherington, Bridges, & Insabella, 1998) have taken pains to point out that although the impact of family structure is not inconsequential, the majority of youth who live in non-traditional family structures or experience transitions in family type adjust well. Although relatively few studies have found that there are no significant differences in adjustment between youth living in single/divorced versus two-parent families, Demo and Acock (1996) stressed the importance of acknowledging that many differences in family structure effects are quite small in magnitude and clinical significance. They found consistent differences between family types, but also found that differences in adolescent well-being were greater within than across family types. Similarly, Videon (2002) found more variance within groups of youth differing in family structure than between them. Cherlin (1999) has advocated a middle ground for researchers and policy makers that acknowledges that although parental instability and divorce do make a difference in youth adjustment, many, or even the majority of youth do not suffer severe or

long-term adjustment problems related to family structure or transitions. However, it is also important to note that so many youth currently experience family transitions and live in structures that differ from the two-parent norm that even the minority of that group who experience problems constitutes an objectively large number of American youth.

Two-parent families are not typical in many populations of youth (Bumpass & Lu, 2000), and single, blended, or extended families are nearly as prevalent as intact families headed by a biological mother and father. This is particularly true for African American youth. For instance, Kung and Farrell (2000) found that 32% of predominantly low-income African American seventh grade students in one urban area lived in a two-parent family, 28% in a single-parent family, 22% in a single-parent extended family (with roughly a third living with grandparents, a third with other adults, and a third with both grandparents and other adults), and 18% in stepfamilies. Thirty percent of African American youth may spend some time in relatively infrequent family structure types, including father only, or with relatives other than parents or grandparents (Hill et al., 2001). It is thus important to be cognizant of the effect of living in different family structure types on adjustment. Family process variables have often been proposed as mediators of family structure effects on youth outcomes. Generally some but not all of the variance accounted for by family structure has been found to be mediated by variables such as monitoring, attachment, and conflict (e.g., Gordon-Simons et al., 2006).

One outcome that has been linked to family structure, but studied relatively less than other indicators of youth adjustment, is substance initiation, use, and abuse in adolescence. Many researchers have found that children from intact families in which parents have never divorced have lower rates of substance use than youth from single-parent families or

stepfamilies (e.g., Duncan, Duncan, & Stryker, 2006; Ellickson, Tucker, Klein, and Saner, 2004; Griffin, Botvin, Scheier, Miller, & Diaz, 2000; Griffin, Botvin, Scheier, Doyle, & Williams, 2003). Substance use in adolescence, particularly when initiated as early as sixth to eighth grade, is a serious public health concern that is related to far greater risk for eventual abuse or dependence (Grant & Dawson, 1997), and associated problem behavior outcomes, including aggression, delinquency, early or risky sexual behavior, and school dropout (Ary, Duncan, Duncan, & Hops, 1999; Donovan & Jessor, 1985). The prevention of substance initiation at its earliest stages, before additional negative outcomes accrue, is an important goal of research on adolescent substance use. Studies that seek to clarify the relations between risk factors thought to contribute to the initiation and maintenance of substance use are necessary to create more targeted, effective interventions.

Thus, there is a need for further research on the influence of family structure on parenting and youth outcomes, particularly concerning how these relations may vary by race. Research on the potential mechanisms for explaining varied adjustment in youth from different family structures is gradually growing, but relatively little has been done to (1) examine differences in substance initiation for youth residing in a large variety of family structures, to (2) determine how the likelihood of youth substance initiation is affected as family structure changes, (3) examine how important covariates, including parenting, income, and residential instability may mediate the influence of family structure and changes on substance initiation, and (4) investigate the influence of race on the impact of these variables on substance initiation. Addressing these questions requires a large dataset collected with a sensitive measure of family structure that has the power to examine correlates and outcomes even for family constellations reflective of a relatively small

percentage of youth. Longitudinal data are also required for the examination of changes that may occur in youth adjustment as family structure changes.

This project made use of a nationally representative sample of more than 2,000 adolescents aged 12 to 13 in 1997 who were assessed across 3 waves from 1997 to 1999, as part of an effort to investigate the characteristics of youth making the transition from school to the labor market (National Longitudinal Survey of Youth [NLSY97]). African American youth were sampled at percentages higher than their representation in the general population to enable statistical comparisons by race. Based on child report of who lives in the home, regression analyses were employed to examine the associations among family structure and transitions, parenting, income, residential mobility, and substance initiation over time. This study has the potential to significantly advance the current research on the effects of family structure by using a large longitudinal sample, examining important potential mediators, and evaluating both racial differences and transitional effects.

REVIEW OF THE LITERATURE

This section discusses the literature examining the impact of family structure, transitions, and related variables on youth adjustment. First, some background is provided in the form of current and historical trends in family structure and transitions in the United States; as well as demographic and statistical information on substance use prevalence and trajectories in adolescence. Next, studies are presented that detail aspects of youth adjustment, particularly substance use, that have been found to vary by family structure. Then, several theories of how family structure influences outcome are presented, and the literature on common correlates of family structure, including parenting, income, and residential mobility is reviewed. Racial differences in family structure, substance use, and the relations between the two are presented. Because family structures are necessarily preceded by transitions (e.g., divorces and changes in family members), research that examines the impact of transitions on youth adjustment is also reviewed.

An Overview of Family Structure: Demographic Statistics and Trends in the United States

Research on the correlates and effects on youth of living in family structures that differ from the "norm" of two biological parents and their offspring has enjoyed a long tradition in psychology and related disciplines (see Demuth & Brown, 2004). Much of this work has focused specifically on the effects of divorce. Despite its long history, the area remains an active one, with many articles published every year, expanding on past work with more sensitive measures and definitions of family structure, longitudinal designs, a greater

understanding of mediating factors that may explain some of the impact of family structure on youth outcomes, and an examination of racial and gender group differences. However, few studies have so far encompassed all of these advances.

Of children born into any union (cohabiting or married), 34% will experience a disruption by age 16. Overall, 20% of the childhood years of American youth are spent in a family without a parental union, 9% in a family with a cohabiting parental union, and 71% in a marriage union (Ginther & Pollack, 2004). It is difficult to find detailed nationally representative statistical descriptions of more varied family structures, and for frequencies of different types of transitions (Hill et al., 2001). However, the U.S. Census provides statistics on broad family structure categories. Currently, 68% of American youth live with two married parents (including stepparents), 23% with mother only (may include other related or unrelated adults, but not the father), 3% with father only, and 4% with neither parent (U.S. Census Bureau, 2009). This varies by race, such that 74% of Caucasian youth live with two married parents, whereas 35% of African American youth do so. A greater percentage of African American youth live with their mother only (51%, compared to 18% of Caucasian youth) or with neither parent (9%, compared to 4% of Caucasian youth). Ginther and Pollack (2004), using three large panel surveys, found that between 30 and 48 percent of youth reported *ever* living in a family structure other than two married parents. However, the percentage of childhood spent in non-union (i.e., living with a single parent with no stable relationship) and cohabiting union (i.e., living with two adults who are unmarried) families is much higher among those born in those family types, those with lower mother education and age, and among African American families. Specifically, African American youth spend

65% of their childhood years in non-union families, 11% in cohabiting union families, and only 16% in married parent families.

Family boundaries today have grown more ambiguous. Transitions between family structure types, once unusual, have become more frequent and also more complex. Presently family structure status cannot be defined simply by whether a child's parents are married or divorced; rather, a host of other relationships have grown more common. The divorce rate has remained constant for 20 years, affecting approximately 50% of marriages and one million children each year. By the 1980s, the majority of Americans of marriage age had cohabited with a partner outside of marriage (Bumpass & Sweet, 1989). At the same time, marriage rates declined and unmarried childbearing increased (Bumpass & Sweet, 1989). As cohabitation increased, many unmarried births occurred in cohabiting couples. Additionally, half of all stepfamilies were found to be formed after the couple had spent time in a cohabiting relationship (Bumpass & Sweet, 1989).

Half of all children spend at least some time in single-parent families, an experience that is associated with impoverished family resources relative to two-parent families (Wu, 1996). Depending on the study measuring it, "single-parent" time is often made up of a proportion of time spent in a home with a parent and cohabitating partner. Depending on the gender of the single parent, between 11% and 33% of single parents may live with an unmarried partner; male parents are more likely to have cohabiting partners (Fields, 2003). Because of the rising prevalence of this new category, children's family lives are becoming less stable in that transitions occur as families move not only in and out of marriage, but also in and out of cohabiting partnerships.

Findings from 13,017 respondents from the National Survey of Families and Households (NSFH) conducted in 1987 to 1988 (Bumpass & Lu, 2000) and from 10,847 respondents from the National Survey of Family Growth conducted in 1995 (Bramlett & Mosher, 2002) also provide insight into recent trends in family structure. For instance, cohabitation is increasing within and between cohorts, such that as women age, they are more likely to have experienced cohabitation at some point, and younger cohorts of women are cohabiting more than older cohorts. The proportion of household unions that were reported as cohabitation (rather than marriage) doubled over the time period studied from 1980-1984 to 1990-1994. Cohabiting unions are more common among the less educated, and increases in this type of union have been greater among Caucasians than other racial groups. Many cohabiting unions are short term; half last less than 1 year, and only 10% last more than 5 years.

There has also been a decline in the proportion of women who marry a cohabiting partner; this currently stands at 53% (Bramlett & Mosher, 2002). Thirty percent of women aged 25-39 have lived in more than one cohabiting union. Unmarried births are more likely to occur to mothers in a cohabiting union than to single mothers in no current relationship. Only 17% of all births occur outside of any union at all (i.e., to a single woman who reports no relationship with the father of the child). The increase in unmarried childbearing over the time period studied is due almost entirely to an increase in cohabiting (versus single mother) childbearing; 18% of births from 1997-2001 were to cohabiting mothers in the National Survey of Family Growth. For this reason, two-fifths of all youth will spend some time in a cohabiting family before age 16. A proportion of children living with single (75%) and married mothers (20%) will transition into cohabiting families before age 16 by either the

addition of a male to a single-parent home or divorce and subsequent cohabitation. A higher percentage of African American women than Caucasian women are likely to enter a cohabiting relationship due to the higher proportion of single, African American mothers (Bramlett & Mosher, 2002).

Generally, research shows that African American youth spend more time in single-parent families than do Caucasian youth (e.g. Fields, 2003). Few studies have found no racial differences in the amount of time youth spend in cohabiting families (for a counter-example, see Dunifon & Kowaleski-Jones, 2002). Marriage is often delayed following single mother birth, especially among African American mothers. Overall, one-third of all first-born children to an unmarried mother will spend their entire childhood without entering a married family; this figure is much smaller for Caucasian youth (20%) than African American youth (75%) (Bumpass & Lu, 2000).

African American youth are also more likely than Caucasian youth to spend time in a household comprised of a mother and grandmother (Hill et al., 2001). In one convenience sample of low SES African American women in a nutritional intervention program, 40% of mothers overall, both married and single, reported the presence of additional family members in the home (Williams, Auslander, Houston, Krebill, and Haire-Joshu, 2000). Data from the U.S. Census 2006 population report showed that 8% of children live in a home with a grandparent; and of these, 65% also had a parent present. African American children were more likely to live in a home with a grandparent present (9% vs. 6% Hispanic, 4% Caucasian). African American children were also much more likely to live in a home with grandmother alone vs. both grandparents.

Substance Use and Initiation Among Adolescents: Prevalence, Trajectories, and Race Differences

It is relatively common for alcohol and marijuana initiation to occur in early adolescence. According to the most recent National Survey on Drug Use and Health, nearly 40% of 14 to 15 year-olds reported having used alcohol at least once, and 15% reported using marijuana at least once (Substance Abuse and Mental Health Services Administration, 2009). Lifetime, yearly, and monthly use jump sharply between ages 12-13 and the next measured age group at 14-15. For example, in the 2008 survey, SAMHSA estimated that 3% of 12 to 13 year-old used alcohol, and 1% of 12 to 13 year-old used marijuana in the past month; by ages 14 to 15, 13% of youth had used alcohol in the past month, and 6% had used marijuana. Similarly, lifetime initiation rates of alcohol jumped from 14% to 39% between these age groups; and from 3% to 15% for marijuana (SAMHSA, 2009). Kosterman, Hawkins, Guo, Catalano, & Abbott (2000) found even higher rates of early adolescent substance initiation, with 64% of children having used alcohol and 13% having used marijuana by age 13 in their sample (Kosterman, Hawkins, Guo, Catalano, & Abbott, 2000).

In general, adolescence is a developmental period in which substance use is on the rise. Older adolescents are more likely to use substances than are younger adolescents: the use of cigarettes, alcohol, and marijuana increase during this developmental period (Duncan, Duncan, Biglan, & Ary, 1998, Scaramella, Conger, & Simons, 1999). Compared to younger adolescents, older adolescents also tend to consume more substances when they do use them, compared to younger adolescents (Richards, Miller, O'Donnell, Wasserman, & Colder, 2004). Whereas risk of alcohol initiation peaks before age 11, risk of marijuana initiation rises throughout adolescence (Kosterman, et al., 2000).

It is important to study constructs that may influence the initiation and use of substances, particularly in early adolescence, to guide interventions designed to prevent negative outcomes. Adolescents who initiate substance use earlier have steeper increases in use across adolescence (Barnes, Reifman, Farrell, & Dintcheff, 2000). Early initiation of substance use is associated with a greater likelihood of experiencing more substance-related negative outcomes throughout development, including a greater risk of abuse and dependence (e.g., DeWit, Adlaf, Offord, & Ogborne, 2000). One study of over 27,000 current and former drinkers found that age of alcohol initiation is an extremely strong predictor of later abuse and dependence: over 40% of individuals who began drinking before age 14 reported ever receiving a diagnosis of alcohol dependence, compared to less than 10% of those who began drinking after age 20 (Grant & Dawson, 1997). Early initiation of substance use has strong associations with problem behavior in early adolescence as well. Early initiation (before age 11) of alcohol, marijuana, and other substances was found to be a strong correlate of 16 health risk behaviors, such as substance use, violence, and suicidality, among sixth through eighth grade students in one large survey (DuRant, Smith, Kreiter, & Krowchuk, 1999). Additionally, Ellickson, Tucker, Klein, and Saner (2004) found that early initiates of marijuana use were more likely to abuse marijuana, use hard drugs, use more than one drug, and to have low grades and academic intentions by grade 10.

In general population studies, Asian and African-Americans adolescents on average have lower rates of cigarette, alcohol, and drug use than do their Hispanic and Caucasian peers (Johnston, O'Malley, Bachman, & Schulenberg, 2006). African American students are less likely than Caucasian students to use substances in middle school (Simons-Morton et al., 2001) and at age 19 (Barnes et al., 2005). In addition, Duncan, Duncan, and Strycker (2006)

and Barnes, Reifman, Farrell, and Dintcheff (2000) found that Caucasian adolescents show a greater increase in alcohol use across adolescence compared to African American adolescents.

However, results vary, and these findings are more complex than they initially seem. In terms of prevalence, some studies find that likelihood of marijuana use (rather than alcohol or cigarettes) is associated with minority race (e.g., Ellickson, Tucker, Klein, & Saner, 2004; Kosterman, Hawkins, Guo, Catalano, & Abbott, 2000). Moreover, although lifetime substance use is generally higher among Caucasian than African American populations, as a group, African Americans' past 30-day rates of illicit drug use (versus cigarette or alcohol use), are higher than any racial group except for Native Americans (SAMHSA, 2009). Additionally, SAMHSA's 2009 national survey indicated that African American adolescent males (at 18% for lifetime use) initiated marijuana at roughly the same rates than Caucasian adolescents (at 17% for lifetime use). Moreover, in an epidemiological study of over 18,000 past year drinkers, Dawson (1998) found that although Caucasians were the group most likely to drink, African Americans drank more by volume when they did drink, and had a higher frequency of heavy drinking.

The most glaring discrepancy between African American and Caucasian substance users, however, is between the relative burden and negative outcome associated with substance use (Wallace, 1999). African Americans who do use substances are more likely than Caucasians to experience substance dependence, substance-related illnesses such as cirrhosis or cancer, and to accrue financial, legal, spousal and job-related problems as a result of their use (Wallace, 1999). African American drinkers experience more alcohol-related

chronic health and social problems than do Caucasians, and the prevalence of these kinds of problems have increased in recent years (Jones-Webb, Hsaio, & Hannon, 1995).

Because early initiation of alcohol and marijuana use is so closely linked to the likelihood of abuse, dependence, and other negative outcomes, research that identifies risk and protective factors that may inform prevention efforts, particularly those that may explain or mitigate racial differences in initiation and substance-related consequences, is an important goal. Evidence to suggest that variables within the family act as risk and protective factors that may vary for Caucasian and African American youth are presented later in this review.

Relations between Family Structure and Youth Adjustment

Differences in family structure have been associated with a large variety of youth outcomes. These include substance use (Eitle, 2005; Oman, 2002, 2007), aggression, delinquency, and conduct problems (Demuth & Brown, 2004; Gordon-Simons et al., 2006; Hoffman, 2006), cognitive ability, grade retention and academic success (Acs, 2007; Kowaleski-Jones & Dunifon, 2006; Tillman, 2007), early sexual activity (Deliere & Kalil, 2002; Flewelling & Bauman, 1990), and victimization in and out of the home (Turner et al., 2007). The effects of family structure differ according to which outcome is examined (e.g., Tillman, 2007), but researchers generally find a robust negative relation between living with two biological parents and problem behavior, a risk associated with single-parent living, and a less consistent pattern of findings related to the risks or benefits of living within other family types. One reason for this lack of agreement is an inconsistency among researchers in how family structure categories are defined and compared. Comparisons have been made along many different dimensions: number of parents in the home (i.e., two parents regardless

of biological relation to the child versus single parents), legal marriage status (i.e., married versus cohabiting parents), the gender of parents, and the presence of extended relatives in the home, particularly as an addition to single-parent families.

Specific features of these categories have sometimes received further study. For instance, the impact of living in a single-father family has been a formerly understudied area that has received recent attention, as this group of youth is small but growing quickly and may be at particular risk (Eitle, 2006). Additionally, some researchers have differentiated between simple stepfamilies, and potentially riskier "complex" stepfamilies characterized by the blending of two sets of offspring (Dunn, 2002; Tillman, 2007). Researchers interested in the presence of extended relatives in the home have attempted to examine whether the potentially protective effects of having more adults in the home who can monitor and parent youth is detrimentally counterbalanced by additional strain on family resources. Certainly behaviors and attitudes of other adults and extended relatives may vary greatly, and differentially impact youth outcomes.

However, even within these family structure categories, there tends to be a large amount of diversity in youth adjustment (Dunn, 2002; Hetherington, Bridges, and Insabella, 1998). This is important to remember, in that many of these studies aggregate youth outcomes within groups, obscuring individual differences. Many other factors, some associated with family structure and some independent, contribute to variability in youth outcomes. Thus, there is little agreement in the extent, severity, and duration of problems associated with certain family structure types. This may be due to variations in sample characteristics and the factors each study considers as mediators, moderators, or covariates. The following section reviews the literature on outcomes for youth living in a variety of

family structure types. Each major family structure type is briefly presented according to its key characteristics. Studies are then presented in which comparisons are made across multiple categories of family structures. This section focuses on the aggregate research regarding the influence of living within these family structure types on youth outcomes in general; findings regarding substance use, particularly initiation will be highlighted where possible, but this area is relatively understudied in the family structure literature as compared to other outcomes.

Two-parent families. Living with two married, biological parents in an "intact" family that has never experienced a divorce is associated with lower levels of many problem behaviors and negative outcomes in a variety of studies. This family structure is often used as a reference group in studies in which outcomes of youth in different family structure categories are compared. For instance, Pierret (2001) found that youths living in non-intact families earn lower grades and are over 100% more likely to use marijuana regularly and over 200% more likely to have multiple arrests. Oman (2007) found a lower likelihood of past 30-day tobacco, alcohol, and drug use among youth living in two versus one-parent homes. Adolescents living with married biological parents have lower externalizing problems than do other family types (even after controlling for maternal/income variables) (Carlson, 2006). Demuth and Brown (2004) found that those living in two-parent families had the lowest levels of delinquency, compared to those living in a variety of other family constellations.

Single-parent families. In general, researchers find that living in a single-family home is associated with poorer outcomes than living in other family structures in terms of supportiveness of the family environment, income, and behavioral outcomes in youth

(Carlson & Corcoran, 2001). Dornbusch et al. (1984) found consistent evidence for higher levels of deviance (contact with the law, smoking, truancy) among those from single mother homes than those in "intact" homes with two natural parents.

However, some evidence suggests that single-parent households are qualitatively different if formed by divorce or the death of a parent versus if the parent was never married, and these families, although identical in structure, may be associated with different outcomes for youth. For instance, Demo and Acock (1996) replicated the common finding that adolescents living in original two-parent families fared best in terms of socio-emotional adjustment, academics, and global well-being. However, by dividing single-mother families into those that were continuous across the youth's lifespan and those that were formed by divorce, they were able to examine potential differences among these groups. They found that although those in continuous two-parent families experienced the best outcomes, those in divorced single-mother families and remarried families experienced the least positive outcomes, and those in continuous single-mother families fell in between (effects averaged up to half of one standard deviation.) Biblarz and Gottainer (2000) also found that whereas single mothers who were single due to the death of a spouse had offspring that did not differ from the two married parent reference group in educational attainment and well-being, youth whose mothers were single due to divorce experienced comparatively worse outcomes. Mack, Leiber, Featherstone, and Monserud (2007), using data from the National Longitudinal Study of Adolescent Health, generally found few differences in serious and non-serious delinquency among youth from different family structures, except that those from continuously single-mother families reported less delinquency than those from divorced single-mother families. Mack et al. (2007) did not find that either of these groups differed

significantly from the intact family reference group. Differing findings may be partially explained by which constructs are examined. Often continuous single-mother families have the benefit of fewer stressful transitions; whereas divorced or widowed single-mother families may have the benefit of higher incomes.

Single-father families, although more rare than single-mother families, have been receiving increasing attention in the literature. Deliere and Kalil (2002) found that compared to youth in married-parent families, those in single-father families had comparable educational outcomes, but a higher likelihood of behavioral problems and delinquency at high school graduation.

Extended relative families. Findings have been mixed when examining the effect of living in a family structure containing extended relatives, with some finding positive associations, some negative, and some no association with youth adjustment. Much of the research on the presence of extended relatives compares adjustment among youth living in single-parent families with and without other extended relatives (e.g., Deleire & Kalil, 2002), perhaps because extended relatives are more often found living with single than with two-parent families (Fields, 2003). Almost half of never-married single mothers lived with their parent(s) at the time of their child's birth, and approximately one-third of divorced single mothers spent some time in their parent(s)' household after that transition (see Deliere & Kalil, 2002). In one sample of African American youth aged 13-17 (predominantly urban and male), approximately 70% lived with a single mother. However, 75% of those youth indicated that they felt very close to a relative other than their parent who played an important part in their lives. Closeness to extended relatives was associated with a lower likelihood of delinquency and conduct problems (Rodney, Tachia, & Rodney, 1999).

Deleire and Kalil (2002), using data from over 11,000 youth from the National Educational Longitudinal Study, found that the presence of extended family members had a positive relation with youth adjustment. Whereas youth in single-parent families exhibited poorer adjustment than those living in two-parent families, those living in single-parent extended relative families exhibited outcomes comparable to those living in two-parent families. Specifically, youth who in the eighth grade lived with a divorced single parent and his or her family of origin exhibited less substance use, a later initiation of sexual activity, and better educational outcomes at high school graduation than all other kinds of single-parent families, at levels comparable to those living in two-parent families. Moreover, compared to those in single-parent families without extended relatives in the home, those living with a never-married single parent and extended relatives were more likely to graduate from high school and enroll in college and were less likely to use substances. They were also no more likely to initiate sex than were those in two-parent families (Deliere & Kalil, 2002). This finding was particularly striking because those in single-parent/extended relative families had much lower incomes, on average, than did those in two-parent families (Deliere & Kalil, 2002). In fact, because there were very few non-African American or economically advantaged youth in this group, the authors cautioned that these findings may only apply to relatively disadvantaged minority youth. Other research indicates that grandmother involvement is quite beneficial for young single mothers, who experience less distress and more positive interactions with their babies than those without grandmother involvement (see Jones, Zalot, Foster, Sterrett, & Chester, 2007). Dornbusch et al. (1984) found that generally, youth living with single mothers and another adult (defined as *not* a child, parent, or stepparent) displayed lower levels of deviance than those living with a single mother alone.

Hamilton (2005) found that although living with parents and a grandparent was associated with lower levels of deviance in adolescents compared to those without any grandparents in the home. This relation was stronger for African American than Caucasian youth. However, the presence of grandparents did not interact with family structure. That is, living with a grandparent was not more protective for those from single versus intact families.

Other research, however, indicates that grandmother involvement may be associated with lower quality parenting among adolescent mothers (McLoyd et al., 2000). Hill et al. (2001) found that in general, youth did not exhibit better outcomes with more adults in the home (i.e., step or grandparents versus mothers alone). However, some studies suggest this may be an artifact of other factors. Salem, Zimmerman, and Notaro (1998) found that African American teens living with mothers plus extended family were more likely to use marijuana than those living in other structures, but only because they also tended to be older.

Stepfamilies/remarried families. The research on adjustment among youth in stepfamilies is more equivocal than that for youth living in two-parent or single-parent families. In general, however, research indicates that in terms of outcome, youth from stepfamilies appear more similar (i.e., experience more negative outcomes) to youth from single-parent than those from two-parent homes. In a recent meta-analysis of the impact of parental remarriage on children, Jeynes (2006) noted that adolescents in remarried families achieved academic outcomes and experienced levels of psychological well-being up to two-tenths of a standard deviation lower than those in intact families, and at somewhat lower levels even than those youth from single-parent families. Rebellon (2002) found no association between living in a single-mother family and delinquency, but found that the long-term presence of a stepparent was associated with violent types of delinquent offending.

Dornbusch et al. (1984) found that unlike the presence of another adult (most likely an extended relative), the presence of a stepparent was not associated with lower levels of deviance compared to a single parent. Flewelling and Bauman (1990) found that early adolescents from stepfamilies were between 1.7 and 1.9 times more likely to have tried cigarettes, alcohol, marijuana or initiated sexual behavior than were those from two-parent families; odds ratios (ORs) for those in single-parent families were only significantly different from two-parent families on marijuana and sexual initiation.

Cohabiting relationships. As detailed earlier, cohabiting relationships are more common among those of marriage age than in past decades, and as such, more youth are being born or transitioning into cohabiting unions. Although they are more difficult to study due to their shorter duration and lack of legal bonds, some research indicates that neglecting to include cohabiting relationships in studies of family structure may cause researchers to underestimate family instability, particularly for African American youth. Raley and Wildsmith (2004) found that adding transitions into and out of cohabitation to those into and out of marriage increase the number of overall transitions by 30% for Caucasian children and 100% for African American children.

In many ways, including family income and parental education and well-being, cohabiting families are more similar to single-mother families than they are to married families. It appears that often, the presence of another adult in the home is not associated with better parenting and child behavior outcomes compared to conditions associated with one biological parent only. For instance, Manning and Lamb (2003) found few differences between single mother and cohabiting or stepfather families, suggesting that in this sample,

the addition of a man to a single mother household was not associated with any increase or decrease in risk.

Manning and Lamb (2003) focused on the influence of cohabitation on adolescent well-being, comparing youth in that family type to those in two-parent biological families, stepfamilies, and single-parent families. Using a large sample from the National Longitudinal Survey of Adolescent Health, they found that adolescents living with a cohabiting parent experienced worse academic outcomes and more delinquency than those in stepfamilies and two-parent families. Brown (2004) also undertook an examination of the significance of parental cohabitation on youth well-being. Specifically, she used a sample of more than 35,000 youth from the National Survey of America's Families to examine variations in youth's behavioral and emotional problems and school engagement among those in cohabiting, married, and single-parent families. She also estimated whether differences in youth outcomes could be seen if both parents versus only one parent was a biological parent to the target youth, in cohabiting and married families. In this way, it was possible to test for the influence of biological relatedness versus marriage in influencing child outcomes. On average, youth living in two married biological parent families exhibited the best outcomes. Those in two married biological parent families had lower mean levels of emotional and behavioral problems than those in cohabiting biological parent families, suggesting some protective effect associated with marriage *per se*. Within families with one biological parent, there were no differences associated with whether that parent was married (i.e., stepfamilies) or cohabiting in terms of youth outcome. Neither of these family types were significantly different from single-mother families (Brown, 2004).

Comparisons across multiple structure types. Hoffman and Johnson (1998) completed one of the most thorough and extensive cross-sectional examinations of the distribution of substance use among adolescents according to family structure using data from the National Household Survey on Drug Abuse. Using a cross-sectional sample of over 22,000 adolescents, Hoffman and Johnson were able to examine the prevalence of substance use and abuse among youth in nine different family types, with the specific goal of using their large dataset to include relatively infrequent family types, including father-only families, and families that included or consisted only of relatives other than parents. Hoffman and Johnson (1998) found that substance use and abuse was most prevalent among father, father-stepmother, and other relative only households, and least prevalent among mother-father households. The association between family structure and substance abuse was found to be even stronger than substance use, with youth who lived in single-father or father-stepmother families more than two times as likely to report substance abuse as youth living in mother-father families. Substance abuse was only slightly more likely (OR = 1.4) in single-mother families than intact two-parent families.

Other data suggest that family structure is associated with differences in children's physical health, academic performance, and emotional and behavioral adjustment. Dawson (1991) provided a snapshot breakdown of family types using the 1988 National Health Interview Survey, a nationally representative survey including a basic health and demographic questionnaire. This survey did not include estimates of more complex family structures characterized by the presence of extended family or other adults. It provides a conservative estimate of relations between family structure and youth outcomes due to the controls it imposes on related variables, including child age, income, and maternal

employment and education. Specifically, Dawson (1991) found that youth living in two-parent biological families were at lower risk for all negative outcomes, whereas there were no significant differences among youth living in never-married, divorced, or remarried mother households.

Causal Theories of Family Structure Effects

Various theories have been presented to explain how living in different family structure types may affect youth outcomes. These can be divided roughly into three categories, (1) those that rely on the availability of supervision or direct control as the main explanatory factor, (2) those that focus on socialization, social bonding, or indirect control, and (3) those that explain variation in outcome according to stress or strain placed on families and youth in certain family types, including changes in residence and income. A somewhat less studied possibility is that family disruption and child maladjustment are both the result of other underlying causes, such as parental maladjustment, parenting practices, and/or strained family relations. Reciprocity among these factors is also plausible. The following section summarizes major theories that have been posited to explain the mechanism of action by which family structure exerts effects on youth adjustment. In the next section, important correlates of family structure are presented, and research findings that support these theoretical explanations of the relation between family structure and youth outcomes are summarized.

The cumulative evidence of several studies suggests that one key way in which family structures may differ is by family processes, particularly parenting variables. Social interactional theory, social control theory, and the social developmental model all posit that parenting is a key element in the prediction of adolescent substance use. One way that

family structure may influence outcomes for different youth is through differences in the availability of supervision or direct control. Homes without two parents may provide less discipline and monitoring due to greater conflict within the household or fewer adults available to watch youth. According to a social interactional theory of substance use (Dishion & McMahon, 1998), parental monitoring is one element in a triadic model of parenting. Other elements are parental motivations and beliefs, including norms, values and goals, and behavior management, which includes all parental attempts to direct child activity, using techniques such as rewards, punishment, setting and enforcing rules, and negotiation of boundaries. Within this theory, parental monitoring can potentially be ineffective or even harmful, embedded as it is within the social interactions of the family. If parent-child relationships are poor and there is a history of coercive interactions, children may be resistant to monitoring attempts, and parents may be reluctant to keep trying. In this case, family relationships may require work before increased monitoring has its effect (Dishion & McMahon, 1998).

Another causal mechanism that may differ among youth in different family structures lies in differing amounts of social bonding, or socialization from family. Living in a non-intact home may inhibit affective attachment to parents, and thus conformity to conventional norms, activities, and beliefs (Rebellon, 2002). Lack of conformity to these norms has been proposed as an important predictor of youth deviant behavior. For example, according to social control theory (Gottfredson & Hirschi, 1990), in the absence of strong bonds to parents and the social order (operationalized as relationships to conventional persons, institutions, or activities), individuals are "free" to engage in deviant behaviors such as drug use and delinquency. One context in which this freedom may be expressed is an association with

deviant peers. Strong bonds may not develop due to strain in a variety of contexts, including school or especially at home. Disorganization in the neighborhood or family also contributes to a failure to form conventional bonds (Petraitis et al., 1995).

The social development model (Hawkins, Lisher, Catalano, & Howard, 1986) mirrors social control theory by noting that one way in which the level of deviance of individuals with a lack of strong social bonds will vary is according to the types of influences to which they are exposed. Behaviors that are rewarded are more likely to be repeated. Whether substance use or other deviant behavior is rewarded socially is a function of the peer (as well as family and school) group to which the individual belongs. Parental behaviors determine the extent to which youth will have the opportunity for involvement with deviant peers. Hawkins et al. (1986) stated:

> We suggest that the formation of strong bonds to family and school will decrease the likelihood that youths will develop early attachments to drug abusing peers in early adolescence, since we postulate that the behaviors rewarded in family and school and those likely to be rewarded by drug abusing youths are not compatible (p. 35).

These theories suggest that parenting during childhood and early adolescence is of particular significance, because good parenting prepares the child for the increasing autonomy and demands associated with the transition to adolescence, whereas poor parenting leaves the child undefended against these demands, and more likely to succumb to the environmental influences, such as peer deviance, that increase the likelihood of substance use and other externalizing behaviors.

Strain theories propose that certain types of family structures are more associated with financial and emotional stress, which can affect parenting skills and promote negative

emotion in youth that may lead to other adjustment problems (see Hoffman, 2006; Rebellon, 2002). Jeynes (2006) elaborates on the "transition school of thought" in explaining the impact of parental remarriage on youth adjustment, suggesting that the transition is associated with difficulty accepting new parental and sibling figures in the home, and feelings of jealousy and rivalry. Additionally, remarriages may be less stable than initial marriages, adding to turbulence and stress in the home (in Jeynes, 2006).

Important Correlates of Family Structure

As posited by theory, families with different structures tend to vary on several important variables, including parenting, income, residential mobility, neighborhood factors, and youths' association with deviant peers (Gordon-Simons et al., 1996; Hoffman, 2006). Effect sizes found for the influence of family structure on youth outcomes vary considerably depending on whether statistical controls are used to account for the influence of these variables (Jeynes, 2006). Considering the myriad of challenges associated with family structures other than intact two-parent families (particularly single-parent families), an important question becomes how much variance in youth adjustment can be explained by family structure per se, versus other associated factors. Some research has shown that controlling for demographic and other variables can reduce the amount of variance explained by family structure drastically, sometimes to the extent that it no longer predicts outcomes (i.e., Falci, 2006). However, Hoffman (2006) found that family structure effects were attenuated but not eliminated by considering income, parenting, and control variables. Perhaps because demographic challenges such as low income are more common among family structures characterized by non-marriage births, controlling for these correlates has been found to diminish the effects of family structure on outcome more for those living

within them (Carlson, 2006). For instance, among youth in single-mother families, an improvement in family income is linked to improved behavior (McKinney, 2002).

Parenting

The cumulative evidence of several studies suggests that one key way in which different family structures may differ is by family processes and parenting variables. This section reviews the literature on the importance of parenting in predicting youth adjustment; and how parenting and family process may differ among different family types. Family structure has been found to have associations with parenting behaviors such as monitoring. Parental monitoring is an effective parenting tool related to lower levels of substance use and other problem behavior among middle school youth. The construct has been tested and found effective as a predictor in ethnically and geographically diverse samples of youth followed over several years in early adolescence (e.g., Forehand, Miller, Dutra, & Chance, 1997). Several studies have found lower levels of parental monitoring in households headed by single parents. For instance, one study found that in late childhood (ages 8 to 11), parental monitoring was highest among married mothers, followed by divorced mothers, followed by never-married mothers; never-married mothers were twice as likely to be in the lowest quintile of monitoring compared to married mothers in this study (Chilcoat et al., 1996). Pettit et al. (2001) also found lower levels of monitoring in households with single mothers of 13 year-old children. Students in two-parent homes or households headed by grandparents, foster parents, or others reported higher levels of monitoring than those headed by single fathers or mothers (Borawski et al., 2003). Children in two-parent homes are also less likely to be latchkey children (i.e., take care of themselves after school) (Richardson et

al., 1989). Compared to divorced single-parent families, married two-parent families report more monitoring and fewer behavior problems among adolescents (Vandewater & Lansford, 1998).

Other researchers have studied whether parental monitoring is higher in households with extended family members, such as grandparents or aunts and uncles. Farrell and Kung (2000) found that in a sample of urban, African American families of middle school students, the presence of extended family members in the home did not increase the likelihood of positive parenting, including monitoring, and intact families were found to provide more positive parenting than were single-parent extended families. Several contextual variables that could contribute to the outcome could not be assessed, such as overcrowding, the relationship of the additional adults in the home to the child, the adults' involvement in parenting the child, and the duration of the living arrangement (Farrell & Kung, 2000). Parental monitoring also varies between stepfamilies and intact families. One study found that both mothers and stepfathers monitor children's activities less than do mothers and fathers in intact families. Lower monitoring by a stepfather was related to greater association with deviant peers for girls, but not boys (Kim et al., 1999).

Mother-adolescent agreement, interaction, and supervision are lower in stepfamilies and divorced single-mother families as compared to two-parent families and continuous single-mother families (Demo & Acock, 1996; Mack et al., 2007). Continuously single mothers have been found to be less likely to praise or hug their adolescents and more likely to be aggressive toward their adolescent. On the other hand, some research shows that they are equally as likely to supervise and interact with their adolescent as other family types (Demo & Acock, 1996). Youth living in single-mother families are also more likely to report

that they made a greater number of decisions without parental input, and less likely to report that their parent made decisions without their input (Dornbusch et al., 1984).

Several studies (e.g., Amato, 1987) have shown that although mothers' parenting is equivalent regardless of family structure, youth receive lower levels of paternal support, control, and punishment in single mother and stepfather families (although in the latter family type, these increase over time after the transition has been made). Single-parent families have been found to have lower levels of family cohesion, and youth living in these family arrangements sometimes have more household responsibility compared to those in intact two-parent families (Amato, 1987). Hair et al. (2008) found a small but significant relation between family structure and relationship quality, such that those from intact two-parent families tended to report more positive relationships with a residential parent. Other research has not found that parental separation is associated with an increase in unsupervised time, or a decrease in maternal closeness, but that it is associated with a decrease in maternal closeness and an increase in the number of friends who smoke (Kirby, 2002).

Family variables such as attachment to parents are also important in protecting youth against other risks. For instance, family structure and peer deviance are linked to each other through their shared relation with family process and parenting variables. Peer influences are linked to substance initiation, number of substances used, and faster acceleration of substance use across adolescence (e.g., Dishion & Medici Skaggs, 2000; Duncan et al., 1999; Oxford et al., 2000; Walden et al., 2004). Kim and colleagues (1999) systematically examined group differences in the relations between parenting and youth outcomes by family structure and gender. This cross-sectional examination used a predominantly Caucasian sample of 10 to 18 year-old youth, and found that the relations among various parental variables, including

monitoring and negativity, antisocial peer association, and externalizing variables varied as a function of both gender and family type. The effect of peer deviance on externalizing was stronger among youth in stepparent families than in two-parent families. The authors also found that although peer deviance became a stronger predictor of externalizing with age for all groups, this effect was stronger for youth from stepfamilies (Kim et al., 1999). Hoffman, Cerbone, and Su (2000) used growth curve analysis to demonstrate that family attachment buffers adolescents against the impact of stressful life events over time, such that those high in family attachment increase their substance use less as stressful life events accumulate. This buffering impact of family attachment is also seen in the relations between substance use and both age and peer use as well, such that those with high levels of attachment are less impacted by the influence of getting older and having friends who use substances than those with lower attachment. Hoffman, Cerbone, and Su (2000) found that stressful life events, including but not limited to changes in family structure, are associated with the growth of substance use across adolescence.

There are certainly factors more or equally as important to family structure in influencing youth adjustment. Several researchers have concluded that although youth from disrupted or single-parent families do not fare as well on average as those in intact two-parent families, they are comparable to youth in disharmonious intact two-parent families. That is, it is the family atmosphere that makes the most difference in youth adjustment, rather than family structure per se (e.g., Juby & Farrington, 2001). For instance, interparental conflict is detrimental for youth regardless of family type. Vandewater and Lansford (1998) compared youth from two-parent biological families to divorced (never remarried) families and found main effects on youth internalizing, delinquency and peer social adjustment for

parental conflict, but not family structure. Mack et al. (2007) also found a main effect of low attachment in predicting delinquency, but very few differences by family structure in a sample of youth from intact two-parent families and single-mother families. In this study, attachment levels were invariant across family structures.

These parent-child process variables, particularly mother-adolescent conflict, have been linked to family structure and also to youth adjustment (Demo & Acock, 1996). However, one unexpected finding in this study was that supervision was negatively related to adolescent adjustment, such that greater supervision was associated with lower well-being (Demo & Acock, 1996). Relations between parenting variables and child outcomes may move from child to parent (i.e., problem behavior prompts supervision), or may be reciprocal in nature.

Mediation: Is family structure a "mere marker" for other parenting deficits? Many of the causal theories devised to explain the impact of living in different family structures on youth outcomes are essentially mediational theories in which certain family structures are more closely associated with familial and parental deficits than others. Many studies have demonstrated the importance of examining mediated effects in order to correctly weigh the influence and mechanism of multiple variables to accurately predict a given outcome. The total influence of any given variable on another is composed of direct and indirect effects; direct effects are those that influence an outcome directly, whereas indirect effects operate on one or more mediating variables, that in turn influence outcome. Earlier in this review, evidence was presented to suggest that family structure is associated with youth adjustment; and in the previous section to suggest that family processes are associated with youth adjustment, and that these processes vary by family structure. The question remains as to

whether the effects demonstrated for family structure operate through the impact of family structure on family process; that is, if family processes mediate the relation between family structure and youth adjustment, either wholly or partially. This section reviews the literature, describing studies that have tested this mediational hypothesis.

Some studies have found evidence for at least partial mediation of the influence of living in a single-parent family on negative youth outcomes by parenting variables, whereas others have not. For instance, single-parent families may produce more delinquent youth due to weaker direct and indirect control: Demuth and Brown (2004) found that family structure was related to levels of discipline, monitoring, and support, which in turn was related to delinquency. In contrast, Deleire and Kalil (2002), using a very large sample from the NELS, found no evidence to suggest that rules, monitoring, involvement, or educational expectations mediated the family structure effects they found on youth substance use and educational outcomes. Nor did Manning and Lamb (2003), who found that parental control/monitoring, and especially closeness, were related to youth outcome, but did not mediate any other effects. It is also important to take into consideration the possibility of competing or reciprocal effects. In this vein, some research suggests that children are resistant to stepparents' parenting (Gordon-Simons et al., 2006).

Carlson and Corcoran (2001) found that after controlling for maternal characteristics and family income, the effects of family structure on youth behavior problems were no longer significant, suggesting a mediated effect. Youth in homes with more supportive environments were less likely to exhibit behavior problems. However, these analyses did not account for cohabiting parental relationships or family structures consisting of extended family members.

In a Caucasian, cross-sectional sample, Simons et al. (1999) employed hierarchical multiple regression to examine relations among the correlated putative predictors, divorce, income, parental conflict, parenting, and child externalizing and internalizing among adolescents. After controlling for other variables, mother's parenting (monitoring, consistent discipline, lack of harsh punishment) was the only variable significantly associated with youth outcomes. These results indicated that for boys, externalizing outcomes were mediated by father involvement and maternal parenting, such that boys whose fathers were involved and whose mothers parented well were at no greater risk than boys in non-divorced homes. For girls, post-divorce parental conflict also contributed to risk of delinquency.

Sandefur and Wells' (1999) study provided further clarification on the impact of family and parenting characteristics as potential mediators of family structure and transitions, while leaving several unanswered questions. They employed the National Longitudinal Survey of Youth (NLSY,1979) to examine shared family characteristics that might be "upwardly inflating" the estimate of the impact of family structure on youth educational outcomes. Using NLSY(79)'s sibling data, they demonstrated that taking into account family characteristics, such as parenting, shared by siblings reduces but does not eliminate the effect of family structure on youth adjustment (as compared to the estimate of family structure on youth adjustment obtained by unrelated adolescents). The experience of family transitions, or living in a single or stepparent family, was associated with lower educational attainment, even after taking into account family characteristics shared by siblings (Sandefur & Wells, 1999).

McLeod et al. (1994) found differences in the role parenting played as a mediator for Caucasian and African American youth. For Caucasian youth, parenting practices including

maternal spanking, affection, and alcohol use partially accounted for the relation found between single parenting and problem behavior. This mediated effect was not seen for African American youth. Additionally, among Caucasian families, there was a reciprocal relation between punishment and youth behavior, such that for Caucasian parents, spanking was both a cause and a consequence of misbehavior, whereas for African American parents, spanking was caused by misbehavior, but not related to future misbehavior. McLeod et al. (1994) did not find that the presence of extended family members in the home or the length of single parenthood had any influence on the overall pattern of results.

The results of Lansford, Ceballo, Abbey, and Stewart's (2001) comparison of different family structure types on measures of parent and child well-being and family processes emphasize the importance of the respondent in determining outcome. Of the 15 variables examined, 12 differences were found using mother reports, three differences using father reports, and two differences using child reports. Lansford et al (2001) found that the family structure differences in youth adjustment that emerged using mother report were mediated by family process variables.

Dornbusch et al. (1985) used a large cross-sectional sample of data collected from approximately 6,500 youth aged 12-17 from 1966 to 1970. They compared deviant behavior and family decision-making among youth in several household types, with a particular comparison of youth in single-mother families versus single-mother families with another adult in the home. They found that youth in single-parent families were more likely to make decisions autonomously than those in two-parent families. Although this youth-dominated decision making was predictive of deviance in youth, it did not mediate the relation between single parenting and deviance; both decision-making and family structure exerted

independent effects. The authors found some gender differences in these relations. For girls, the influence of family structure was not seen until ages 16-17, at which point less parental influence and greater youth autonomy were seen in single-mother families. However, among boys, these characteristics were seen in single-mother families as early as age 13. Additionally, for girls, the relation between decision making and deviance was seen in intact but not mother only families.

To summarize, it is a common presumption that differences in youth adjustment are not due to family structure per se, but to associated family characteristics. However, in many studies, family structure effects have remained even after many other family process and parenting variables have been accounted for (see Hoffman, 2006).

Interactions between family process and family structure. A question that has received relatively less attention is whether different family process variables may be more salient in different family structures. That is, are there any interactions between family processes or parenting variables and family structure in how youth outcomes are impacted? Some research suggests that different assets may be more or less pertinent in one versus two-parent homes (for example, the presence of adult and peer role models, community involvement), whereas others, like family communication, are important in both kinds of homes (Oman, 2007).

In order to examine whether different processes influence adolescent well-being in different family structures, Demo and Acock (1996) used regressions within each family type to analyze relations between socioeconomic and family process variables and youth outcomes. For the most part, the results of these analyses showed that similar processes influence youth adjustment across family types. Some differences emerged however, in that

aspects of the parental relationship, such as conflict, influenced youth adjustment in divorced mother and stepfamilies, but not in two-parent families. Additionally, mother-adolescent disagreement was a salient factor in all family types, but supervision and interaction were only significant in two-parent and stepfamilies, not divorced single-mother families (Demo & Acock, 1996). Simons et al. (1999) also found that there was no relation between parental conflict and child adjustment in two-parent families, indicating that this construct might operate differently to influence outcome in different family types.

It is possible that family attachment may become particularly important when youth are at risk due to a transition. Hair, Moore, Garrett, Ling, and Cleveland (2008) found that parent-adolescent relationship quality was strongly predictive of family processes, and that family processes predicted youth distress and problem behavior. Specifically, youth with a positive relationship with a residential parent were less likely to report engaging in delinquent behaviors, a relation that was mediated entirely by family processes such as routines, monitoring, and supportiveness. Hair et al. (2008) did not compare the role of these processes between disrupted and non-disrupted families, but it is reasonable to suggest that youth who have experienced a disruption might be particularly affected by parenting behaviors. Videon (2002) employed a sample of over 5,500 youth from the National Longitudinal Study of Adolescent Health, of which 203 experienced the separation of their married, biological parents between fall of 1994 and summer of 1996. Longitudinally, Videon (2002) found that the higher an adolescent's satisfaction with their relationship with their same-sex non-residential parent prior to parental separation, the greater their increase in delinquency was likely to be after a separation. Specifically, for boys who reported a positive relationship with their father, and girls who reported a positive relationship with

their mother, the transition to a non-residential relationship with that parent results in greater delinquency than girls whose parents did not separate, or girls who lived with that parent after separation. Alternatively, boys and girls who reported unsatisfactory relationships with their same-sex parent reported less delinquency post parental separation and residential separation from that parent than those who continued to live with that parent. The same relations were not shown for relationship satisfaction with parents of the opposite sex. Videon (2002) theorized that because youth in general more often live with mothers after parental separations, these findings regarding the importance of same-sex parental relationships may help explain others' findings that boys often face more negative outcomes after divorce than do girls.

Cherlin (1999) cited research suggesting that both parents and peers influence youth adjustment. Specifically, among youth not living with two parents, frequent moves and their concomitant social disruptions are related to decreases in adjustment, whereas the same effect is not seen among youth in two-parent families. Others have suggested that certain family process variables, including communication, can moderate the impact of family structure and transitions such as remarriage on youth outcomes (in Jeynes, 2006).

Peterson and Zill (1986) found that having a good relationship with at least one parent moderated the negative relation between family structure transitions and youth adjustment, such that youths in this situation had incidences of problem behavior similar to those in intact families. In fact, Peterson and Zill (1986) found that poor parent-child relationships and parental conflict in intact families were associated with similarly bad outcomes for youth compared to youth who experienced a disruption. This study employed two waves of longitudinal data, but did not control for Wave 1 characteristics of youths and families. The

analysis was also limited to youths who had contact with both parents within the five years prior to the survey. Having a positive relationship with neither parent was most likely when a child lived with their mother and experienced multiple transitions (46% of youth had no positive relationships in this group); it was least likely among youth living with two low-conflict biological parents (18%). Twenty-eight percent of youth living with two persistently high-conflict parents reported having no positive parental relationships, as did 29% of youth living with a single mother, on average. Among youth whose mother divorced a second time, less than 10% reported a positive relationship with both parents. However, it was difficult to attribute these differences to changes caused by disruptions, versus age of the children at disruption, or selection factors.

Income

As described earlier, strain theories propose that certain types of family structures are more associated with financial, emotional, and residential stress, which can affect parenting skills and promote negative emotion in youth that may lead to other adjustment problems (see Hoffman, 2006; Rebellon, 2002). Income has long been assumed to be an important explanatory variable in accounting for the differences in youth adjustment found for those in different family types. Some research indicates that income may play a more important role in educational outcomes (e.g., high school graduation and college enrollment) than in behavioral outcomes, such as substance use, delinquency, or sexual initiation (Deliere & Kalil, 2002). Poverty, particularly persistent poverty, has been linked to lower school achievement and socioemotional functioning among youth through a variety of processes, including birth complications, access to resources, cognitive stimulation in the home, teacher expectancies, life stressors, and parenting factors (McLoyd, 1998).

Much research indicates dramatic economic disparities across different family structures, most markedly in the form of lower incomes among single-mother families. Two-parent families are more likely to fall in higher income brackets than are stepparent or single-parent families, particularly those headed by a single mother (Hoffman & Johnson, 1998). Some research suggests that continuous single-mother families account for most of this group, whereas single-mother families formed by divorce have incomes more in range with other family types (Demo & Acock, 1996). Single mothers with children often report the most economic problems of any household type (e.g., Williams et al., 2000). Divorced single mothers have been found to work more hours per week than continuously single or married mothers (Demo & Acock, 1996). Stepparent families have in some studies been found to earn incomes comparable to those of two-parent families (Demo & Acock, 1996). Closely tied to income is parental education. Single parents tend to achieve lower educational levels than do married parents (Painter & Levine, 2000).

In contrast, Simons, Lin, Gordon, Conger, and Lorenz (1999) found that in their sample, divorced single mothers and married mothers did not differ in terms of age, educational attainment, employment outside the home, or hours worked per week, which is not consistent with many of the discrepancies commonly found in the literature comparing married mothers to single mothers as a general category. However, Simons et al. (1999) employed an entirely Caucasian, mainly small town sample in which aspects of single parenting may be in some way different from the country as a whole, and particularly be different than urban parenting or minority parenting.

Some researchers have proposed an economic hypothesis, suggesting that most or all discrepancies between adjustment of youth in different family structures can be explained by

differences in income. Biblarz and Gottainer (2000) found that although widowed, divorced, and never-married single mothers did not differ significantly on many values and beliefs, religiosity, or substance use measures, the latter two groups were more likely to be employed outside the home than widowed mothers, and when employed, to hold lower-paying and lower status jobs. These groups had lower household incomes as well, which were only partially explained by lower educational attainment.

In many studies, controlling for family income attenuates or even eliminates the relation between single parenting and child outcome (e.g., Ginther & Pollack, 2004). For instance, Manning and Lamb (2003) found that discrepancies in academic achievement and delinquency among adolescents in cohabiting families versus stepfamilies and two-parent families was in large part due to socioeconomic differences between these groups. However, some amount of variance in delinquency that was accounted for by family structure differences remained after controlling for SES, parental control, and previous family instability. Additionally, Brown (2004) found that in childhood (ages 6-11) the negative relation found between residing in a two biological cohabiting parent family could be explained entirely by reduced economic circumstances compared to two biological married parent families. However, economic circumstances explained only part of the differences seen between two biological married parent families and cohabiting and married stepfamilies and single-mother families. Adding parental psychological well-being and parenting conflict to the model in addition to economic resources completely mediated the relation between cohabiting families and poorer child outcomes. However, in adolescence (ages 12-17), living in a cohabiting family was associated with poorer behavioral and emotional outcomes for youth even after controlling for economic factors, parental well-being, and parenting conflict.

Other researchers have found limited support for an economic hypothesis of adolescent adjustment disparities among family structure types. Demo and Acock (1996) found that adolescents from stepparent families experienced more adjustment problems than those from two-parent families, despite comparable income levels. The authors also examined relations among income and adolescent well-being within several family types, and found no significant relations. Rather, although income and adolescent adjustment were correlated, these relations were no longer significant in regression equations including family process variables, indicating the possibility of a mediated effect. Others also have found that controlling for social class does not diminish the relation between single parenting and deviance (Dornbusch et al., 1984). One study found that although youth from single-mother families were more likely to receive public assistance for the poor than were youth from intact families, youth classified as poor were less likely to be involved in non-serious delinquency rather than more likely, although the authors cautioned that family income may be a better indicator of economic strain than public assistance (Mack et al., 2007).

Residential Stability

Strain theories also propose that instability in residence may place stressful burdens on youth transitioning in and out of different family structures, placing them at increased risk for substance use and other negative outcomes. Youth in two-parent homes experience greater residential stability, characterized by fewer moves and moves covering less geographic area, than youth in other family types (Astone & McLanahan, 1994). Stepparent and single-father families have especially been found to move more often than other family types (Hoffman & Johnson, 1998). Father-headed families and stepfamilies, although less likely to fall in lower income brackets, are more likely than single mother and two-parent

families to experience a greater number of residential changes (Hoffman & Johnson, 1998). Several studies have suggested that frequent moves may explain a large portion of the variance in youth outcomes among those from different family types. For instance, Astone and McLanahan (1994) reported that compared to the 73% of students who reported no moves between grades 5 and 10, only 56% of those in single-parent families and 47% of those in stepfamilies had never moved. They found that up to 30% of the association between living in a stepfamily and school dropout (as compared to living in a two-parent family) can be accounted for by greater residential mobility in the former group. In this case, residential moves were defined as those which required a change in school, a definition which may be particularly relevant to educational outcomes (Astone & McLanahan, 1994). Crowder and Teachman (2004) also found that the strong relation they found between living in a single-parent family and premarital pregnancy and school dropout were attenuated or eliminated by controlling for the number of residential moves, especially to or within disadvantaged neighborhoods. In contrast, Hoffman and Johnson (1998) found that differences in substance use and abuse among youth in different family structures were explained only in small part by discrepancies in family income and residential mobility.

Racial Differences in Family Structure, Correlates and Relations to Adjustment: A Comparison of Caucasian and African American Families

It is possible that African Americans may face greater consequences from substance use due to higher premorbid risk characteristics, such as lower SES and a greater likelihood of growing up in a single-parent family. Both family income, education, and attitudes toward substance use vary by ethnicity (Johnstone, 1994). Research suggests that minority youth are over-represented in single-mother families and families that contain or are headed by other

relatives (Hoffman & Johnson, 1998). Caucasian children are more likely than African American children to live with two married parents (Federal Interagency Forum on Child and Family Statistics, 2004). Fewer Caucasians (8%) live in poverty than do African Americans (23%) (U.S.Census Bureau, 2003). African American children are more likely than children of other races to live with a single grandmother with no parents present, a living arrangement that is associated with a 5.6 times greater likelihood of living in poverty (Casper & Bryson, 1998). Dawson (1998), who found that African Americans were more likely than Caucasians and Hispanics to drink frequently and at high volume, found that this difference disappeared when unmarried status, education, and income were controlled. Demo and Acock (1996) found that continuous single-mother families were a qualitatively different group than divorced single-mother families, more likely to be African American, and have lower income, maternal educational attainment and employment. Additionally, Demo and Acock (1996) found that approximately 87% of stepfamily mothers in their sample were Caucasian, whereas only 8% of continuously single mothers were Caucasian.

The findings of Salem, Zimmerman, and Notaro (1998) point out the importance of examining more than just gross family structure categories when considering risk of substance use and other psychosocial outcomes among African American youth. Using such a sample, they found that although youth living with a single mother were more likely to use substances than youth in other family types, this was attributable to the older average age of these youth rather than family structure per se. Moreover, most non-resident fathers were considered by youth "important people raising me," and this perception was related to lower levels of substance use among both boys and girls (Salem et al., 1998).

Some research indicates that African American and Caucasian parents may differ in parenting practices. For example, Dunifon and Kowaleski-Jones (2002) showed that Caucasian mothers reported a greater number of warm interactions with their adolescents that did African American mothers. The authors did not find parenting practices to mediate the relation between family structure and delinquency. However, the measure of parental control employed in this study had a low reliability, which may have affected its relations with other variables.

One explanation for lower rates of substance use among African American children involves a stronger family orientation and different messages and models regarding substance use in African American households. African American youth have been described as more family-oriented and less affected by peer models and behaviors as compared to Caucasian youth (Wallace & Muroff, 2002). African American parents may also be more likely to communicate disproval of substance use to their children; African American families are also more likely to communicate religious prohibitions against substance use to their children (Ellickson, Orlando, Tucker, & Klein, 2004; The National Center on Addiction and Substance Abuse (CASA) at Columbia University, 2001). Some research has found a positive relation between father involvement in families of color and youth outcome, particularly cognitive achievement, but these links are mostly attenuated when economic and maternal controls are introduced (McLoyd et al., 2000).

Many risk factors may operate in a similar fashion for Caucasian and African American youth, but may be more prevalent among African American youth. For instance, Krohn, Lizotte, and Perez (1997) found that "precocious transitions" were both predictive of and predicted by substance use for adolescents Caucasian, Hispanic, and African American

adolescents. However, African American adolescents were more likely to experience precocious transitions, such as school drop-out, living independently, and particularly early childbirth, and to have experienced multiple precocious transitions (Krohn et al., 1997). Despite this imbalance in risk, African American males (but not females) were still less likely to use alcohol or other drugs than their Caucasian counterparts in this study. Smith and Krohn (1995) also found that parental control and attachment were predictive of delinquency for both Caucasian and African American male adolescents.

Moderated risk: Does African American race interact with risk factors for substance use and abuse? One major omission in current theories of the development of substance use is that of the role of race. As described earlier, the prevalence of substance use varies according to race, as does the prevalence of various associated risk factors. According to Petraitis, Flay, and Miller (1995):

> This omission might be justified if gender and ethnic differences in [experimental substance use] arise simply because boys and Whites have higher levels on mediating variables (such as risk taking) than girls or non-Whites. However, it is not justified if gender or ethnicity moderate or interact with other causes of [experimental substance use]. In such a case, gender and ethnicity would be protective factors and would require difference models of [experimental substance use] for boys, girls, Whites and non-Whites (p. 83).

Wallace and Muroff (2002) noted that current interventions are predicated on the assumption that African American and Caucasian adolescents share the same risk factors, and that they are equally exposed to and vulnerable to these risk factors. In their review of the literature and analysis of data from the Monitoring the Future study, they found that of 55 identified

risk factors for adolescent substance use, there were racial differences in prevalence of exposure between African American and Caucasian youth for more than half. Generally speaking, African American youth were more likely to be exposed to contextual risk factors, such as economic deprivation, neighborhood characteristics, and poor academic grades, whereas Caucasian youth were more likely to be exposed to individual and peer-level risk factors (Wallace & Muroff, 2002). Moreover, of the risk factors studied, there were racial differences in vulnerability in over one-third. In almost every comparison, Caucasian youth were more vulnerable to the risk factor (i.e., that risk factor had a stronger relation to their substance use) than were African American youth, even in cases in which African American youth were more often exposed to that risk factor.

A large body of research has linked parental conflict to decreased youth adjustment in many domains, including psychological distress, externalizing behavior, and academic success. Recent research has indicated that this effect, although significant for youth of all races, may be most pronounced in Caucasian youth. Although a consensus has not yet been formed, some researchers have proposed that minority youth may experience a greater average number of stressors, reducing the unique impact of parental conflict or marital dissolution, and that minority youth may be more likely to have support from extended family members (McLoyd et al, 2000). Baer (1999) compared parenting effects in Euro-, Mexican-, and African-American families, and found that whereas maternal monitoring was cross-sectionally associated with lower adolescent deviance in all groups, paternal monitoring exhibited a relation only in Euro-American families. Family cohesion, considered an indirect construct of parental control, was related to lower deviance only for boys, and this relation held across all three racial groups.

Although these findings do much to explain the consistently higher levels of use among Caucasian high school students, they do not explain disparities in substance use consequences. Griesler and Kandel (1998) conducted a study examining risk and vulnerability for adolescent cigarette smoking, and also found that although African American youth may experience greater risk in some domains than do Caucasian youth, in general, Caucasian youth are more affected by those risk factors. However, they found that for African American youth, positive parenting, including warmth and monitoring, had a stronger inverse association with cigarette smoking that it did for Caucasian youth. Similarly, Dunifon and Kowaleski-Jones found that parental warmth and control were associated with lower delinquency only for African American youth, not Caucasian youth. More research is needed on risk and promotive factors that may differentially predict consequences among these, and other, racial groups.

Some research has found racial differences in the relations between family structure and youth outcomes. Dunifon and Kowaleski-Jones (2002) found that a lack of a significant main effect for family type masked significant differences in the influence of family structure on youth outcome between Caucasian and African American youth. Initial analyses found no significant differences in delinquency between two-parent families and stepfamilies vs. biological and non-biological cohabiting partners. These groups were combined for future analyses. For African American youth, time spent in a cohabiting family was associated with delinquency, whereas time spent in a single-parent home was not (two-parent families being the referent). The opposite was true for Caucasian youth. Heard (2007) found that living with a single mother was less strongly associated with lower grades for African American

than Caucasian youth; however, after a family transition, African American youth demonstrated a larger drop in GPA than did Caucasian youth.

More generally, some researchers have argued that a greater historical diversity of and acceptance of various family structure types among African Americans, as well as more father involvement in African American single-mother families, means that the experience of growing up in a non-traditional family structure has a different, and perhaps less detrimental impact for African American youth compared to other ethnic groups (Salem, Zimmerman, & Notaro, 1998). Additionally, particularly for substance use outcomes, living with a single mother may not be detrimental for African American youth. African American women are more often completely abstinent from the use of any substances than are African American males, Caucasian females, and Caucasian males (SAMHSA, 2008), and may act as models that reduce the likelihood of use in African American youth. Bearing out this hypothesis, some researchers, such as Flewelling and Bauman (1990) have found that single parenthood is associated with cigarette use for Caucasian, but not African American, adolescents.

Other research indicates that family structure is no more highly linked to outcome for African American than Caucasian youth. McLeod, Kruttschnitt, and Dornfield (1994) examined racial differences in the influence of family structure on youth problem behavior. Their analyses indicated that overall, youth in single-parent families were more likely to exhibit problem behavior, regardless of race. Leiber, Mack, and Featherstone (2009) found maternal attachment to be a consistent predictor of delinquency for Whites, African Americans, and Hispanics in both intact and non-intact family structures.

Transitions: Disentangling Family Structure from Preceding Events

Making causal generalizations about youth outcomes associated with living in different family structure types is complicated by the fact that the present-time existence of many family structures is often preceded by transitions of parent-figures and others in and out of the home. Family structure transitions are associated with changes in many domains, including school, neighborhood, finances, parental mental health, contact with extended families, and by definition, household membership. Further, understanding the direction of influence may be particularly important and difficult to ascertain. Differences in children's adjustment may have been present to some extent before the relevant transitions occurred (see Dunn, 2002), and transitions may be reflective of pre-existing child behavioral problems and mother adjustment problems rather than (selection effects) or in addition to (reciprocity) the putative casual effect (Tillman, 2007). Because so many studies of family structure have employed small and/or cross-sectional samples, it has been difficult to disentangle current family status from preceding transitions, and to more clearly examine the directions of relationships. One aspect of longitudinal transitional research that has recently become popular is that of youth adjustment and family functioning prior to and after parental separation or divorce. This work provides insight into the influence of one specific type of family structure transition, while leaving open questions about other kinds of transitions involving non-marital bonds, stepparents, and extended relatives.

Transitions, particularly multiple transitions, are linked to certain negative outcomes for youth. Carlson and Corcoran (2001) examined the effects of family structure transitions cross-sectionally, by assigning youth to dummy coded categories based on maternal marital status from the year of the child's birth. Categories included two-parent all years, single-

parent all years, single to two-parent, two to single-parent, and multiple transitions in family structure. The male parent in two-parent home designations could be biological or by marriage. Carlson and Corcoran (2001) found that over half (58%) of youth lived in two-parent families their entire lives; 12% lived in mother-only families; 6% transitioned from single to two-parent families; 13% transitioned from two to single-parent families, and 12% experienced multiple transitions. In this study, it appeared that current status may be more influential than past status, in that youth in single to two-parent transition families experienced fewer behavioral problems than those in two to single-parent families (Carlson and Corcoran, 2001).

A variety of negative outcomes have been linked to transitions, particularly multiple transitions. Juby and Farrington (2001) found that boys who experienced two or more family transitions (in which adults moved into or out of the family) were nearly three times as likely to have youth and adult criminal convictions compared to youth who experienced only one transition. Kirby conduced a series of analyses using the National Longitudinal Survey of Adolescent Health data (2002; 2006) and found that various parental transitions were associated with the initiation of substance use in youth. For example, Kirby (2002) followed adolescents who were living in a two-parent family at Wave 1 from seventh to twelfth grade and found that 27% of those who were living with a single mother at Wave 2, one year later, had initiated smoking, compared to 16% of those who remained in an undisrupted two-parent family.

Several longitudinal studies have shown that a greater number of parenting transitions or disruptions is associated with delinquency and substance use among youth. Peterson and Zill (1986) examined the effects of marital disruptions on youths' behavior. They found that

marital disruptions were associated with a higher incidence of depressed/withdrawn, antisocial, and hyperactive behaviors in youths aged 12 to 16. Youth that experienced multiple parental transitions experienced the worst outcomes.

Among a sample of children of opiate abusers, Keller, Catalano, Haggerty, and Fleming (2002) found more disruptions to be associated with a greater likelihood of problem behavior among male and female early adolescents after controlling for baseline problem behavior, family conflict, and parental depression. Substance use was linked to the number of disruptions only for female adolescents. Keller and colleagues (2002) counted both entrances and exits of mothers, fathers, and maternal or paternal figures as transitions, rather than using the more common method of counting separations or exits only. Thus, living with a natural mother at time 1, a foster mother at time 2, and a natural mother again at time 3 would be considered three transitions. In their sample, the average number of transitions in a 2.5-year period was over two. Specifically, when categorized into no transitions, partial (at least one stable parent figure) transition, and no stability in parent figure groups, those in the latter group were 36 times more likely to report delinquency and five times more likely to report substance use in the six months prior to the last wave than were those in the stable group (Keller et al., 2002).

Using data from the Oregon Youth Study, which employed a sample of mainly lower SES families, Capaldi and Patterson (1991) found that number of parenting transitions was strongly linked to boys' adjustment (a composite of antisocial behavior, substance use, academic achievement, peer rejection, deviant peer association, depression, and self-esteem), even after controlling for SES. Boys who experienced two or more family structure transitions were twice as likely as boys from intact two-parent families to have been arrested

during the 5 years of the study. Family structure transitions were associated with an increase in deviant peer involvement, which was in turn associated with substance use experimentation. In this study, number of transitions was also negatively associated with income and SES. Krohn, Hall, and Lizotte (2009) reported very similar findings using data from the Rochester Youth Development study. They found that, particularly for boys, family transitions of any type were associated with disruptions and problems in the peer domain, leading to higher levels of substance use and delinquency over time.

Some researchers have found that transitions play a more important role than does family composition, including Rebellon (2002), who found changes in family composition were related to delinquency, whereas single parenthood was not. The findings of Hill et al. (2001) also point to the possibility that transitions are more important than family structure per se in influencing youth adjustment. Hill, Yeung, and Duncan (2001) used 27 years of longitudinal data on youth born between 1967 and 1973 to examine finer family structure distinctions, including single mothers with grandparents and mother/stepfather in addition to more common categories. Their data allowed them to examine the impact of both static structures and transitions, as well as the influence of transitions during various developmental periods of childhood. To examine transitions in family types, Hill et al (2001) constructed seven categories detailing various sequences of family structure through child's age 15, such as two-parent all years, two-parent to mother only (and back to two-parent). The final category was a catchall category containing youth who experienced more than one transition or transitions that involved adults other than biological parents or stepparents. They found that being in a continuous two-parent family carried the least risk for low education attainment or premarital birth, but youth from continuous single-mother families

were at lower risk than were youth who had experienced transitions in family structures over time (particularly mother only to two-parent to mother only). Hill et al. (2001) found that family transitions were linked to boys', but not girls', educational attainment. They also found that the influence of parental remarriage varies both by gender of the child and the timing of the event in relation to youth's development (Hill et al., 2001).

In contrast, Carlson and Corcoran (2001) found that single-parent family structure status was associated with the least supportive family environments, lowest incomes, highest risk of maternal depression, and worst behavioral outcomes in youth of any of the other family structure categories, including that of multiple transitions. Additionally, they found that spending at least some portion of life in a two-parent household was associated with better outcomes for youth, regardless of whether a youth transitioned into that structure or out of it, compared to spending no time in a two-parent home (Carlson and Corcoran, 2001).

Some research indicates that race plays a role in the impact of family structure transitions on youth outcome. For instance, Fomby and Cherlin (2007) found that the number of previous transitions was associated with problem behavior for Caucasian children, but not for African American children. Additionally, for Caucasian female adolescents, the number of family transitions is strongly associated with age of first sexual intercourse, whereas for African American female adolescents, risk is instead associated with residence in mother-only, father-only, or mother-stepfather families during adolescence (Wu & Thomson, 2001). These findings point to the importance of examining both stable and dynamic measures of family structure, as each may have different effects.

There is some evidence to suggest that boys are more highly affected by family transition than are girls. For instance, Demo and Acock (1996) found that boys in

stepfamilies and divorced families experienced lower well-being than girls in these family types, whereas no gender differences emerged in youth living in two-parent families. Moreover, despite the generally accepted finding that living with two parents is associated with better outcomes for youth, the transition to a two-parent family can be a difficult one. For instance, an increase in substance use has been linked to family transitions, specifically from unwed and divorced single-parent families to stepfamilies (Kirby, 2002). Girls are more likely to start drinking when a stepfamily forms (compared to boys and those who stay in single-parent families). This is especially true of girls moving from unwed single-parent families to stepfamilies (Kirby, 2002). Boys were also more likely to begin drinking after transitioning to stepfamilies when moving from divorced single-parent families (Kirby, 2002).

There are some methodological challenges to the study of family transitions. It is difficult to control for the impact of transitions on family structure analyses, in that in most cases, never divorced two-parent family structures will have been in place longer than other family structure types (e.g., Vandewater & Lansford, 1998), except in some never-married single-parent families. Moreover, Lansford and colleagues (2006) found that the trajectory of externalizing behaviors for youth who experienced a divorce earlier in their development was worse than for those who experienced a later divorce; divorce in the latter group was associated more strongly with academic difficulty. Thus, it can be difficult to separate the issue of time since divorce when assessed and timing of divorce.

Theoretical differences have led to differing predictions and testable hypotheses about likely group differences in outcome among those with different family structure types. Specifically, proponents of strain theories are more likely to suggest that youth from

remarried families are at a greater disadvantage than those from single-parent families, especially those of longstanding duration, who have not experienced a recent, stressful transition (Jeynes, 2006). Kirby (2002) tested a path model of indirect effects of parental separation on adolescent smoking initiation, in which one path represented "stress," in which depressed mood, rebelliousness, and self-esteem were the hypothesized mediating variables; and in which the other path represented "socialization," measured by parent-child closeness, supervision, and peer influence. He found partial support for the socialization hypothesis, in that friends' smoking mediated the relation between parental separation and smoking initiation, but maternal or paternal closeness and supervision did not. Support was also found for the stress hypothesis, in that both adolescent distress and rebelliousness mediated the separation-smoking relation (Kirby, 2002). However, the persistence of a large direct effect of parental separation on smoking initiation in these adolescents suggested that the mediators were imperfectly measured, or that there were unmeasured mediating variables in the model (Kirby, 2002). Additionally, Kirby's operationalized definition of "stress" as distress and rebelliousness is not entirely consistent with more traditional conceptions (i.e., Rebellon, 2002). Rebellon (2002) found that commitment to conventional goals, family attachment and family involvement did not explain the relation he found between family structure and delinquency, but peer delinquency did act as a partial mediator.

Ginther and Pollack (2004) used a family-based (versus a child-based) classification of family structure and found cross-sectionally that in blended families containing children from the previous union of one parent, as well as children that are the biological offspring of the current union, both experience educational outcomes that are similar to one another and significantly less positive than those of youth in two-parent families. Ginther and Pollack's

findings provide a counterpoint to theories that suggest that negative outcomes associated with non-traditional family structures are largely the product of stressful associated transitions, which would suggest that the biological offspring of blended families should have better outcomes than their half-siblings. Although it does not negate a stress-based theory of effect, it does suggest that number of transitions alone is not an adequate measure of stress as some studies have claimed.

Selection effects: Some family characteristics may predict transitions. Further complicating the difficulties inherent in studying a static factor (family structure) that is very often preceded by dynamic transitions, is the need to take into account the possibility that certain families have characteristics that predispose them to later disruptions. This creates methodological difficulties, because a family that will later experience a transition and a family that will not may look identical cross-sectionally in terms of family structure, but one might expect very different behavioral adjustment outcomes in these families' offspring. Vandewater and Landsford (1998) noted that a snapshot in time method of estimating family structure means that you don't account for the fact that many in the never divorced group will get divorced in the future.

Additionally, it is important to take into account the possibility that, rather than family structure "causing," or at least preceding youth adjustment problems, youth adjustment problems and negative parent and family characteristics may precede the family disruptions that produce certain structures. For instance, Cherlin (1999) noted that in growth models, youth whose parents will later divorce are already exhibiting more emotional problems at age 7 than youth whose parents will not divorce, a gap that grows larger over time. The authors stated, "it suggests that studies that do not take into account the pre-

existing difficulties of children and their families overstate the effect of growing up in a single-parent family." Ginther and Pollack (2004) emphasized that the assumptions researchers make about processes that generate family structure and children's outcomes will influence methodological choices, variable selection, and estimates of effects. They cited the problems inherent in "window" estimates of childhood outcomes, which can often be biased and inaccurate compared to longitudinal estimates. They stated: "to interpret these correlations as evidence of the causal effect of family structure on children's outcomes, researchers need to assume that family structure is exogenous. This assumption is false if there are processes that jointly determine family structure and children's outcomes of if children's outcomes such as behavioral problems affect family structure."

Other researchers have also been interested in these questions. Determining which correlations are causal in family structure research is very difficult. Painter and Levine (2000) attempted to determine which preexisting characteristics of youths and families that divorced during the high school years were related to later problems and maladjustment. They found, using the large National Educational Longitudinal Survey of 1988, that controlling for parent and child characteristics when the youth is in the eighth grade reduces the impact of parental divorce during the high school years by 20 to 45%. In a sample restricted to Caucasian participants, the authors compared intact (biological) families to mother and stepfather and mother alone families, and coded for three types of transitions: divorce from an intact family, (re)marriage of a single parent, and divorce from a stepfather. In this study, adding a variable of experiencing multiple transitions did not account for additional variance in outcome.

Painter and Levine (2000) found that behavioral and emotional problems, cigarette smoking, drug use, and low test scores in eighth grade were more common among those in non-intact families. Although those in stepfather families had higher incomes, their rates of problem behavior were very similar to those in single-mother families. At age 20, those in non-intact families had higher dropout rates, lower rates of college attendance, and for girls, higher rates of out of wedlock birth. Families that were intact in eighth grade but would divorce during high school were very similar to those that would stay together in terms of income, parental involvement, and maternal education. However, in terms of youth characteristics in eighth grade, those whose parents would go on to divorce had slightly higher rates of smoking and drug use, and significantly higher rates of emotional and behavioral problems. The pattern of effects was similar for boys and girls. Controlling for these pre-existing child characteristics reduced the influence of divorce on high school dropout by 23% and on out-of-wedlock birth by 42%.

Additionally, Painter and Levine (2000) found little evidence to suggest that youth whose mothers would go on to remarry during their high school years were at all different in terms of parenting characteristics and problem behaviors than those whose mothers would stay single. Youth whose mothers' went on to remarry had similar educational outcomes as those whose mothers stayed single across high school, but girls in the former group had comparatively lower rates of teen childbirth. Controlling for eighth grade characteristics did not change this relation.

Sun (2001) reviewed research that counters the notion that parental separation is a discrete event that is followed by negative child outcomes once it occurs. Instead, it has been conceptualized in stages: a pre-disruption stage marked by decrements in family functioning

and parenting, followed by a crisis stage marked by separation and often transitions in economic and residential conditions as well as contact with former residential parents or family members. Sun (2001) sought to add to the previous literature on family disruption and structure by establishing a baseline of adaptive youth functioning and family functioning, then following youth prospectively to compare youth adjustment before and after a parental disruption. Sun (2001) examined how family functioning contributes to both pre- and post-disruption youth adjustment. Using a sample of over 10,000 high school students, 798 of whom experienced a parental "adjustment" over a two-year period between tenth and twelfth grade, Sun (2001) found that students from families who would go on to separate exhibited worse outcomes educationally, psychologically, behaviorally, and used more substances than those whose families would not be disrupted. "Pre-disrupted" families were characterized by worse parent-child interactions and lower involvement, which served to mediate between pre-disruption status and youth adjustment. Sun (2001) also found that different factors may account for the influence of family transition on different youth outcomes; whereas family environmental factors were largely predictive of "pre-disruption" youths' psychological, behavioral, and substance use deficits, it was not significantly linked to educational attainment. Sun (2001) found that after controlling for pre-disruption status and family environment, the influence of disruption per se was attenuated, and this influence was also mediated by post-disruption family processes. These findings may in some ways be limited to youth whose parents divorced later in their development, a sample that was more like to be Caucasian, older, and advantaged economically. Sun (2001) found that girls and boys were equally affected by family disruption and associated family processes.

Research with low SES boys at risk for delinquency indicated that maternal antisocial behavior predicted the number of parenting transitions as well as lower monitoring of youth, which in turn predicted poorer youth adjustment (Capaldi & Patterson, 1991). Capaldi and Patterson found that as the number of transitions increased, the proportion of mothers displaying antisocial behavior and poor parenting skills also increased, suggesting these traits and skill deficits may potentially have influenced their offspring prior to any transitions (i.e., evidence for the idea that youth in families that undergo transitions may differ in adjustment from other youth to some extent prior to transitions).

Fomby and Cherlin (2007) also found that delinquent behavior was associated more with transitions than with past or current family structure per se, with multiple transitions increasing risk further. In their research, transitions were impactful because of entrances of adults into the home rather than out of it. Regarding causal factors, these authors found that transitions and youth outcomes shared common antecedent causal factors, such as mother characteristics (age at first birth, substance use, self-esteem) that partially mediated the influence of transitions on youth outcome.

STATEMENT OF THE PROBLEM

Family structure is a complex construct that involves not only with whom a child lives, but also the marital status of his or her parents, biological relatedness of adults in the home to each other and to the child, and transitions of caregivers in and out of the home. These variables are in turn linked to parenting and socioeconomic variables such as monitoring, discipline, conflict, stress, income, and residential moves. Due to the wide range of issues vital to an adolescent's functioning that family structure touches, it is perhaps not surprising that family structure has been consistently linked to important adjustment outcomes for youth, including substance initiation. The use of substances in adolescence is to some extent normative, but the early initiation of substances is linked to poorer future adjustment in academic, vocational, and socio-emotional development, as well as to risk of abuse or dependence. Certain family structures are differentially related to problem forms of substance use.

These already complex relations are not necessarily the same in Caucasian and African American youth. African American youth generally use substances at rates lower than their Caucasian peers, but may be at risk for more negative outcomes when they do use. African American youth are far more likely to live in a single-mother family, a cohabiting family, or with extended relatives than are Caucasian youth; however, the cultural meaning attached to these living arrangements may be different among these groups. Research is mixed as to whether the differences in parental monitoring and other family process variables observed among those in different family structures are differentially related to outcome for Caucasian and African American youth.

For these reasons, the study of family structure and related variables is important in terms of identifying factors and processes that may act as targets for intervention in youth who may be at risk for negative adjustment outcomes. The goal of the current study was to examine the initiation of alcohol and marijuana for youth in various family structures in early adolescence. Alcohol and marijuana initiation were chosen as they are often the earliest of substance of abuse to be initiated; and have been called "gateway" drugs in the sense that they may increase the likelihood of initiation of other substances of abuse. It also examined the influence of transitions from one family structure category to another between consecutive waves of data; and reciprocally, the influence of parenting and youth substance initiation on parental separations. The current study also tested a model in which the impact of changes in family structure on substance initiation are mediated by the effects of family structure transitions on parental monitoring, parent-child relationship quality, income, and residential stability. These variables were chosen as potential mediators due to their link to the major causal theories surrounding why family structure is linked to youth outcome: namely, lack of monitoring or supervision (direct control); poor family relationships (indirect control or attachment); and economic and residential stress or strain. Within this study, it was possible to compare outcomes of meditational models as a test of these theories. Finally, this study was able to advance the literature by examining race-moderated effects and by examining mediation separately for Caucasian and African American youth to determine if family structure and related variables operate differently by race.

The following hypotheses will be tested:

Direct Effects

Family structure effects

1. Adolescents living in single-parent, stepparent, single-parent/extended relative, extended relative, and cohabiting family structures will display the following pattern relative to those living in traditional two-parent family structures:

(a) lower parental monitoring

(b) poorer quality parent-child relationships

(c) higher residential mobility

(d) lower income

(e) a greater likelihood of substance initiation

Selection effects, or Pre-transitions

2. Changes in family structure will be predicted by

(a) higher levels of youth substance initiation

(b) lower levels of parental monitoring

(c) poorer quality parent-child relationships

Mediational Pathways

3. The following changes in family structure will be associated with a greater likelihood of adolescents' substance initiation:

(a) transitions from two-parent families to all other family types

(b) transitions from a single parent family to a cohabiting or stepfamily

The following changes will be associated with a lower likelihood of substance initiation

(c) transitions from a single parent to a single parent/extended relative family

(d) transitions from a cohabiting family to a stepfamily

4. The effects of these family structure transitions on substance use will be mediated by changes in parental monitoring, income, and residential stability (see Figure 1). More

specifically: The specified changes in family structure will be associated with decreases in parental monitoring, and residential stability. Family structure changes associated with a transition from two parents (biological or step-) to one parent will be associated with a loss of income. Full mediation is not expected in that transitions in family structure will be associated with other variables outside the model that will be associated with increases in substance use.

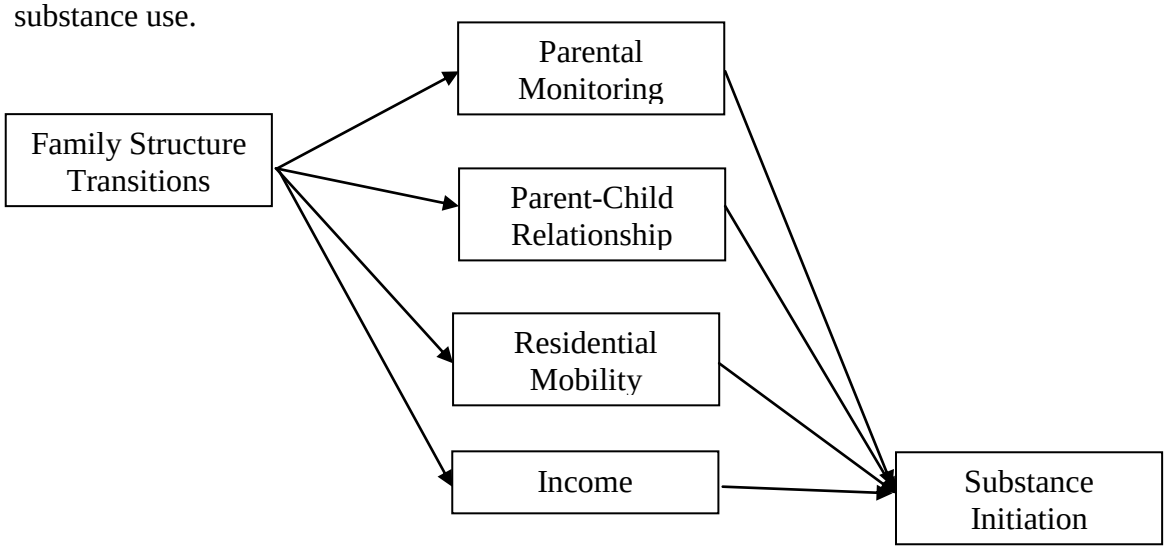

Figure 1. Theoretical model illustrating the hypothesized meditational pathway from family structure transitions to parental monitoring, parent-child relationship quality, residential mobility, and income, and subsequently substance initiation.

Hypotheses Regarding Differences between African American and Caucasian Youth

5. Non-intact family membership will have a weaker relation with substance use for African American youth.

6. Changes in family structure will have comparable effects for Caucasian and African American youth.

Although not tested directly, the basis for this hypothesis rests with the assumption that the acute strain of transition will not vary by race; whereas the more static effect of family

structure is likely to be affected by sociocultural norms, which may be protective for African American youth in "non-traditional" family structures.

The data for the proposed study came from a large, nationally representative longitudinal survey of youth making the transition from adolescence to the labor market (NLSY97). The current study may add to the literature on family structure and youth adjustment in several important ways. Many previous studies have not examined outcomes for more than a few family structures that have been linked to youth adjustment, often due to sample considerations. The sample used in the current study was large enough to include youth from many relatively less common family structures, for example, cohabiting or extended relative families. Additionally, many previous studies have treated family structure as a static variable and not considered the impact of transitions in family structure. Doing so takes into account the notion that specific transitions may have beneficial or negative effects, and may exert effects independent of structure per se. The analysis plan for the current study is also an improvement upon many previous studies. Early studies on family structure effects often employed cross-sectional samples. So-called "snapshot" approaches to measuring family structure can be misleading, in that different family structure types are more prevalent at certain ages for youth (Hill et al., 2001). Additionally, different family structures may exhibit varying relations with youth adjustment at different developmental periods. Finally, many previous studies have not examined the influence of race in a meaningful way, despite research that indicates that certain family structures and transitions are more prevalent among African Americans, as are certain correlates and outcomes associated with family structure.

METHOD

Participants

The data for the current study are from the National Longitudinal Survey of Youth 1997 (NLSY97), a survey of 8,984 youth aged 12 through 16 on December 31, 1996, who spoke English or Spanish. The survey was designed to be representative of people living in the United States in 1997 who were born between 1980 and 1984. The survey over-sampled African American and Hispanic adolescents compared to general population percentages. Youth were surveyed every year, for a total of 10 waves of data available as of 2008. Due to attrition, the final sample size was comprised of 7,559 youth for the most recent sample. Approximately 52% of the sample was Caucasian, 26% African American, 21% Hispanic, and only 1% of another or mixed race. About 20% of families had an income of $15,000 per year or less at the time of the first interview.

The sampling procedure for the NLSY97 identified 75,291 households for screening, designed to be representative of different sections of the population as defined by race, income, and region. Of those households, 9,806 members were identified as eligible to participate in the study (born between 1980 and 1984) through the use of a brief screening interview, and of those, 8,984 (92%) participated in the Round 1 survey.

The current study limited the sample to those students who were aged 12 or 13 in 1997 at Round 1 of data collection. Data from these students were analyzed for three consecutive waves (ages 12/13, 13/14, and 14/15) to limit variation in relations among variables associated with age or development. To ensure the independence of the sample, one sibling was randomly selected for inclusion in the sample in cases in which multiple

siblings fit the age range. Thus, the final sample was arrived at after limiting the full NLSY97 sample to those youth who were African American or Caucasian and aged 12 or 13 at Wave 1 in 1997. From this limited group, siblings were identified and one was selected at random to avoid non-independent data. The final sample used in the following analyses consisted of 2,342 youth. The sample was 52% male and 70% Caucasian. The mean age was 12.6 years (41% aged 12).

Procedure

The interview materials used in the NLSY include the Screener to identify respondents; the Household Roster and Nonresident Roster Questionnaire to collect information on household residents and nonresident relatives in Round 1; the Youth Questionnaire, administered each round, which asks youth to report on topics including employment, schooling, family background, health, and attitudes and behaviors; and the Parent Questionnaire, administered in Round 1, in which one resident parent was interviewed regarding youth historical variables, and aspects of the parent's own life. Incentives of $10-$20 were offered in each round for completion of the interview. Interviews were conducted in the youths' home by trained interviewers using a computer-assisted personal interview process designed to guide interviewers through the interview, by selecting the next question based on the respondent's responses. Interviews with adolescents were conducted by researchers without parents present, and some potentially sensitive measures were self-administered to youth on laptops. These portions were audio-assisted, such that respondent's could listen to questions on headphones as they read them from the screen.

Measures

Family Structure

Family structure was assessed at every wave by asking the child who else lived in the house with him or her, and the child's relationship to that person. At Wave 1, a household roster was developed documenting the results of these questions. At subsequent waves, the child was queried if each household member was still living in the home, and if any new members of the household had been added. From this roster, it was possible to code for the presence of the following household members of interest: mother, father, stepmother, stepfather, grandmother, grandfather, aunt, uncle, other related adult, and other unrelated adult. Youth can thus be categorized as members of (1) a two biological parent family, (2) a stepfamily, (3) a single-parent family, (4) a single-parent extended-relative family, (5) extended-relative no-parent family and (6) a cohabiting family (exclusive of two unmarried biological parents). The latter category is presumptive, as it will consist of a single parent and other unrelated adult. Family structure will be contrast coded to allow a priori linear comparisons across family structures as specified by Hypotheses 3a through 3e.

Race/ethnicity

Race was self-reported to an interviewer during the initial screen and keyed as Caucasian, African American, American Indian, Eskimo, or Aleut, Asian or Pacific Islander, or "something else" (specified by respondent). All respondents were also asked if they endorsed being of Hispanic/Latino ethnicity. These responses were used to classify participants as Hispanic or Latino, African American, non-African American/non-Hispanic, or mixed race/non-Hispanic with no missing values.

Parental Monitoring

Parental monitoring was measured by a 4-item youth self-report measure of how much their parents' know about their friends, their friends' parents, their activities away from the home, and their teachers and school activities. Responses were on a 5-point scale ranging from "0-knows nothing" to "4-knows everything." The measure has been used in several previous studies of family functioning (e.g. Hetherington, Cox, & Cox, 1982). Youth could report on residential mother, residential father, non-residential mother, and non-residential father. For the purposes of this study responses regarding residential parents (phrased as "mother or mother figure" and "father or father figure") were used. All available data were analyzed – thus, some youth had data on both residential parents, whereas some youth only had data for one residential parent (depending on family structure). ChildTrends, the organization sponsoring the inclusion of this measure, estimated internal consistency (alpha) for the scale as follows: youth report of residential mother = .71; youth report of residential father = .81; youth report of non-residential mother = .85; youth report of non-residential father = .85.

Parent-Youth Relationship Quality

Relationship quality was measured by an 8-item scale. Participants could report on residential and non-residential mothers and fathers; as for parental monitoring, all available data on residential parents (mother or "mother figure" and father or "father figure") only were analyzed for the current study. The scale gathered responses on items such as whether youth admired their parents, wanted to spend time with them, received praise, blame, criticism or help from them, and whether parents often cancelled plans with them. Each item was measured on a 5 point scale (0 to 4) and then summed. Scale scores can range from 0 to

32, with higher scores indicating better relationship quality. The items were modified from items used in the Iowa Youth and Family Project (Conger & Elder, 1994). Internal consistency estimates ranged from .75 (residential mother) to .85 (non-residential mother).

Income

Income was defined as the total household income in the previous calendar year. It was calculated from custodial parents' wages, child support, interest from investments, rental income, retirement support, parents' income, public support, and gifts.

Residential Stability

The total number of different residences in which the youth lived since the age of 12 was reported each year at the interview time.

Substance Use Initiation

The Wave 1 survey first established whether the respondent had ever smoked an entire cigarette, consumed an alcoholic beverage, or tried marijuana, and if so asked for the respondent's age at initiation. Respondents who answered 'don't know,' or who refused to answer this retrospective question, continued to receive the question in later rounds until a valid answer was given. If a respondent answered affirmatively, but could not or would not provide the age at which they first drank, they continued to receive the age question in subsequent waves. In subsequent waves, respondents who had previously provided a valid answer to the substance use questions were asked whether they had a cigarette, a drink of an alcoholic beverage, or used marijuana since the date of last interview. Respondents who answered yes were asked a series of follow-up questions in these waves about the quantity and frequency of use in the 30 days prior to the interview, including the number of days the respondent used the substance. From these data, respondents were categorized as having

initiated substance use at each wave. The focus of this study was on initiation of alcohol use and marijuana use.

Data Analyses

Descriptive statistics, including means, standard deviations, and bivariate correlations were calculated for all study variables. Logistic and linear regressions were used to examine the influence of concurrent family structure on the initiation of alcohol and marijuana; and on parental monitoring, parental relationship quality, income, and residential mobility, controlling for age and sex. Logistic regression was also employed to examine the potential influence of lower quality parenting and youth substance initiation on parental separations at the next wave. Next, logistic regression was used to examine the influence of family structure transitions on the initiation of alcohol and marijuana. Parental monitoring, parent-youth relationship quality, income, and residential mobility were examined as potential mediators of this relation (see Figure 2). Racial differences were examined through the construction of race by variable interaction terms; and by examining mediation in separate logistic regression models for those mediator variables that moderator analyses indicated were influenced by race. All analyses controlled for age and gender.

The following figure (Figure 2) illustrates hypothesized relations among the study variables. Models were estimated separately for alcohol initiation and marijuana initiation. The figure is simplified to ease interpretation by the consolidation of the proposed mediators. Direct effects were estimated for the effects of family structure transition and level of the proposed mediators (parental monitoring, parent-child relationship quality, income, and residential stability) on substance initiation. The influence of transitions was examined by the construction of dummy coded transition categories comparing those youth who have

transitioned into and out of specified family structures to those continuously in those structures (the reference group). In terms of direct effects, three broad transition categories were created to test the specific hypotheses of the current study: transitions to and from two-parent families; transitions from single parent families; and transitions from cohabiting families. Auto-regressive paths were included to control for the effect of family structure membership and substance use at previous waves on the same variables at subsequent waves. The figure is an illustration of hypothesized effects; unlike a structural equation model the regression analyses cannot account for the influence of all study variables within one model. Instead each variable in the model at Waves 2 and 3 was treated as a dependent variable in separate regression models.

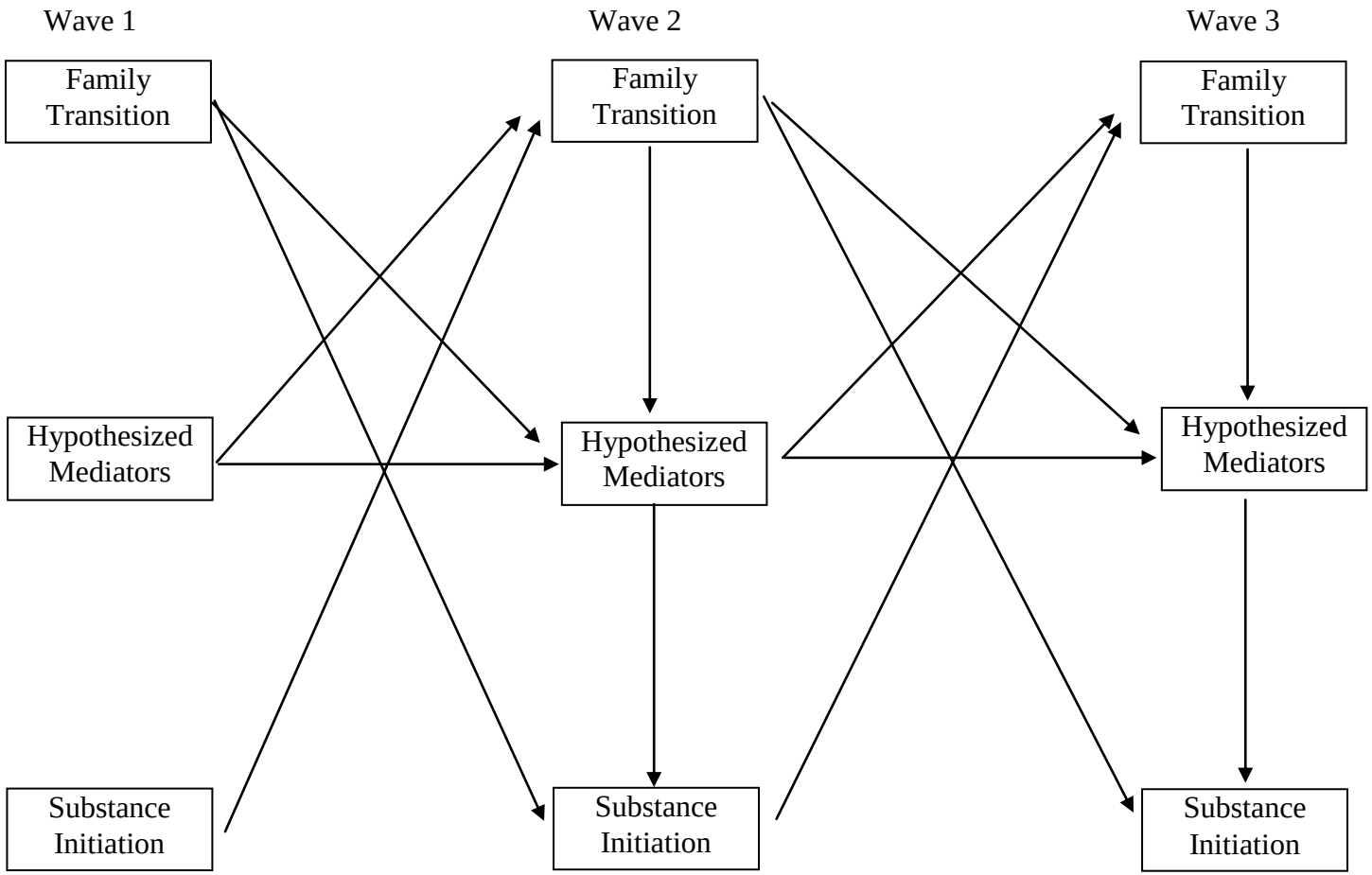

Figure 2. Simplified analytic model illustrating the proposed influence of family structure transitions and hypothesized mediators on subst ance initiation over time. Mediation models were be estimated separately by race (not shown).

A mediational analysis was also conducted to estimate how much the direct effect of family structure transitions was accounted for through the mechanism of parental monitoring, parent-child relationship quality, income, and residential mobility. The total effects of variables were measured by estimating the effect of Wave 1 variables on Wave 2 variables; and the Wave 2 variables on Wave 3 variables, representing the effect a one unit change in the Wave t-1 variable would have on the Wave t variable across the course of the study. The indirect effect is the degree to which the Wave 2 and 3 variables mediate the relation between Wave 1 and 2 and Wave 2 and 3 variables respectively. The direct effect is that part of the Wave t-1 variable's effect on a Wave t variable that is not mediated by a Wave t hypothesized mediator variable.

According to MacKinnon (MacKinnon, 2008; MacKinnon, Fairchild, & Fritz, 2007; MacKinnon, Lockwood, Brown, Wang, & Hoffman, 2007), the analysis of mediation with binary dependent variables using logistic regression should be performed using either (a) a product of coefficients method, or (b) using a difference of coefficients method, but increasing its accuracy by standardizing and rescaling the logistic regression estimates. The difference of coefficients method entails examining whether the regression estimate of the independent variable on the binary outcome (in this case, the estimate of the effect of family structure transition on substance initiation) is substantially attenuated or rendered insignificant with the addition of the hypothesized mediating variables to the model (MacKinnon, Lockwood et al., 2007). The product of coefficients method, in contrast, estimates the mediated effect by multiplying two regression coefficients, as the name implies: the coefficient that estimates the effect of the hypothesized mediator on the outcome, adjusted for the independent variable, commonly represented as *b;* and the coefficient that

estimates the effect of the independent variable on the mediator, commonly represented as *a*. The following figure is a path representation of the mediational model presented earlier with these paths noted as *a, b,* and *c*, where *c* represents the relation of the independent variable and the outcome:

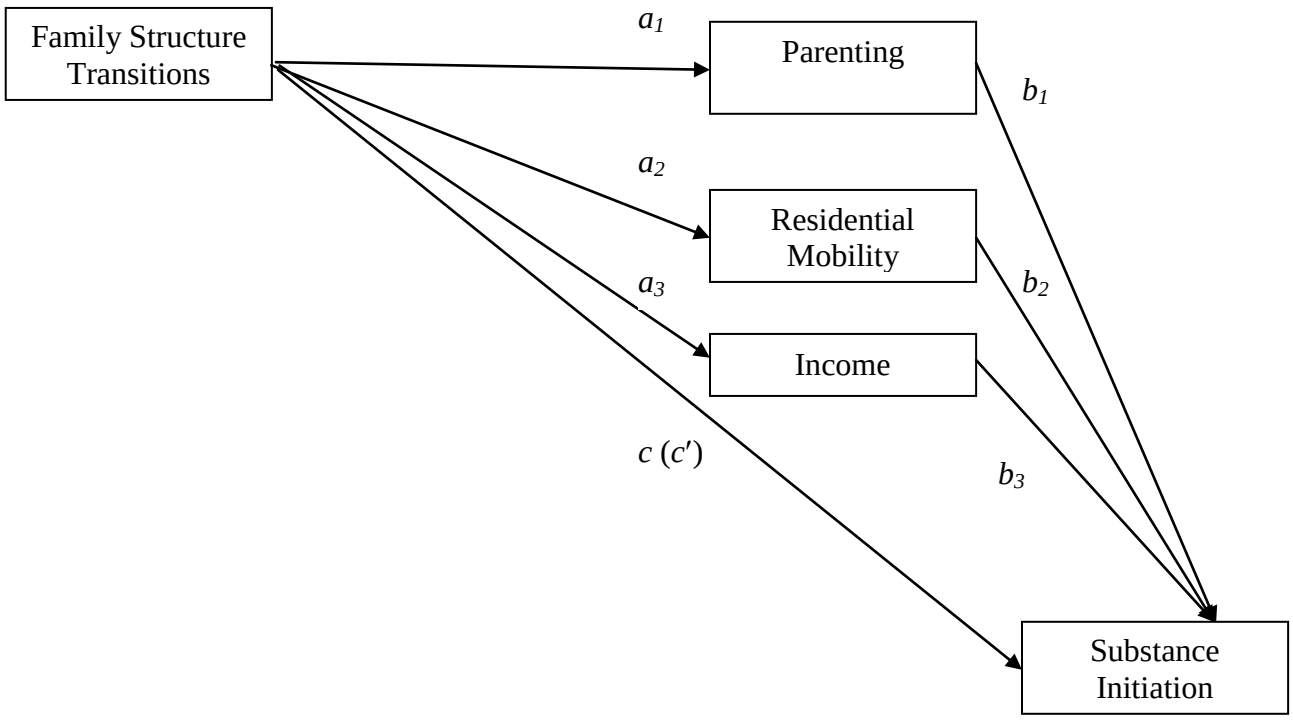

Figure 3. Analytical model illustrating the hypothesized meditational pathway from family structure transitions to income, parenting, and residential mobility, and subsequently substance initiation. In this model, the mediated effects can be estimated as *ab*.

MacKinnon, Lockwood et al. (2007) explained that with continuous outcomes the difference of coefficients method of estimating the mediated effect (c - c') where *c* represents the impact of the independent variable on the dependent variable before the addition of the mediator variable, and c' its impact after the addition of the mediator variable, is equivalent to the product of coefficients method (*ab).* However, they demonstrated that with binary outcomes, especially when the result is not standardized, the difference of coefficients

method results in an underestimation of the mediated effect, and the product of coefficients method is preferred.

For the current study, mediational analyses were undertaken using both the difference of coefficients method and the product of coefficients method for the fullest view of the data. Because the product of coefficients method is considered the more accurate method of estimating mediation with binary outcomes, it was used to examine racial differences by examining the results with first the full sample, then Caucasian and African American subsamples. Although some longitudinal mediation models do not specify paths representing contemporaneous mediation relations, MacKinnon (2008) notes that sometimes a cross-sectional mediation model "may more closely match the true temporal relations in the mediation model so that the cross-sectional relation is more accurate than the longitudinal relation" (p. 204). This may particularly be true when the effect of the predictor variable or mediators is expected to be quick-acting. It may be unreasonable to expect the effects of family structure on substance initiation to persist from the sixth to eighth grade, for example. Thus, the hypothesized mediator variables were measured at the same wave as the substance initiation outcomes.

RESULTS

Descriptive statistics for family structure, parental monitoring, parent-child relationship, residential stability, parental income, and alcohol and marijuana initiation were calculated, and racial differences were examined using one-way analyses of variance (ANOVA). Correlations were calculated to evaluate the relations among the variables. Logistic and linear regressions were used to determine relations among the variables concurrently and over time, controlling for age and gender. Race by Predictor interaction terms were entered into the last block of hierarchical regression analyses relating to the hypotheses that the influence of family structure and transitions may operate differently for Caucasian and African American youth. Separate mediational analyses were also conducted for Caucasian and African American youth, and the results were compared.

Descriptive Analyses

Table 1 presents family structure membership by race at each wave. The majority (approximately 60%) of Caucasian youth resided in two-parent families at each wave. A plurality of African American youth resided in single-parent families at each wave, with percentages ranging from 36% of African American youth at age 14 or 15 to 40% at age 13 or 14. At each wave, a slightly greater percentage of Caucasian than African American youth resided in stepfamilies. This category accounted for 12% to 16% of youth. The remaining family structure categories were relatively rare, accounting for less than 10% of youth from either race at any wave.

Table 1.

Percentage of Youth in Each Family Structure Category by Race and Wave

	Wave 1		Wave 2		Wave 3	
Category	AA	Cauc	AA	Cauc	AA	Cauc
Two-parent	29	60	28	60	27	58
Stepfamily	12	15	14	16	14	15
Single-parent	38	20	40	19	36	20
Single-parent extended	7	2	7	2	7	3
Extended only	8	1	10	1	9	2
Single parent with unrelated adult	3	2	2	2	2	1
Other[a]	3	1	3	1	5	2

Note. *N*s ranged from 645 to 693 for African Americans and 1562 to 1649 for Caucasians due to missing data. AA = African American. Cauc = Caucasian. Participants were ages 12-13 at Wave 1, 13-14 at Wave 2, and 14-15 at Wave 3.

[a] Includes adoptive and foster families.

Table 2 reports the percentage of Caucasian and African American youth who reported having initiated alcohol and marijuana use at each wave. One-quarter of Caucasian youth and one-fifth of African American youth had tried alcohol by age 12 or 13. By age 14 or 15, the majority of Caucasian youth (62%) and almost half of African American youth (47%) had done so. Marijuana initiation was relatively rare at age 12 or 13, with only 7% of Caucasian youth and 5% of African American youth having tried marijuana. By age 14 or 15, a 20% to 28% of youth had tried marijuana, with slightly more Caucasian than African American initiators.

Means and standard deviations were calculated for each proposed mediating variable separately for Caucasian and African American youth. These results are presented in Table 3. Due to the large size of the sample, even small differences were detectable, so an estimate of effect size is also presented. The Cohen's *d* estimate of effect size is reported for the

analyses of variance (ANOVA). A *d* of 0.2 is considered a small effect size, 0.5 a medium effect size, and 0.8 a large effect size (Cohen, 1992). Only medium and large effects were interpreted.

Table 2.

Percentage of Youth Reporting Initiation of Alcohol and Marijuana by Race

	Wave 1		Wave 2		Wave 3	
% Initiated	AA	Cauc	AA	Cauc	AA	Cauc
Alcohol	20	25	36	48	47	62
Marijuana	5	7	13	20	20	28

Note. *N*s ranged from 636 to 691 for African Americans and 1525 to 1645 for Caucasians due to missing data. AA: African American. Cauc: Caucasian.

Caucasian youth reported better paternal relationship quality and higher paternal monitoring (*d*s = .26 to .34). There were no differences in maternal parenting variables by race. African American youth reported living in more residences since age 12. There was a large disparity at each wave between Caucasian youths' average household income and African American youths' lower average household income. This disparity grew from over $20,000 at the first wave to over $30,000 at the subsequent two waves.

Tables 4 and 5 present the percentage of youth transitioning from one family structure to another from Wave 1 to Wave 2 and Wave 2 to Wave 3. Overall, 18% of youth experienced a transition from one family structure category to another between 1997 and 1998; and 13% of youth experienced a transition between Waves 2 and 3. Those in cohabiting families were most likely to experience a transition between waves, with almost 89% experiencing a transition between Waves 1 and 2, and almost 70% between Waves 2 and 3. Those in two-parent homes were least likely to experience a transition, with 5% doing

so between the first and second waves, and less than 5% doing so between the second and third waves.

Table 3.

Means and Standard Deviations for Each Scale by Race

	Caucasian		African American			
Scale	M	SD	M	SD	F	Cohen's d
Wave 1						
Mom Relationship	25.79	4.45	25.35	4.74	4.35*	.09
Dad Relationship	25.34	5.32	23.85	5.71	22.15**	.27
Mom Monitoring	10.90	3.01	10.14	3.36	27.83**	.24
Dad Monitoring	8.89	3.83	7.51	4.20	36.59**	.34
Mobility	1.55	1.00	1.78	1.25	19.63**	.20
Income	52,589	45,581	29,967	33,892	131.15**	.56
Wave 2						
Mom Relationship	24.76	4.96	24.83	4.68	0.08	.01
Dad Relationship	24.49	5.77	22.91	6.32	17.42**	.26
Mom Monitoring	10.18	3.08	9.92	3.37	2.73	.08
Dad Monitoring	8.08	3.94	7.06	4.05	16.06**	.26
Mobility	1.75	1.22	2.07	1.53	25.76**	.23
Income	61,019	56,672	30,869	37,277	99.40**	.63
Wave 3						
Mom Relationship	24.67	4.58	24.54	5.16	0.26	.03
Dad Relationship	24.36	5.64	22.38	6.27	27.70**	.33
Mom Monitoring	9.95	3.15	10.00	3.55	0.08	.02
Dad Monitoring	7.88	3.86	6.83	4.12	16.98**	.26
Mobility	1.99	1.55	2.33	1.76	19.39**	.21
Income	61,526	52,283	28,383	26,606	155.82**	.80

Note. Ns ranged from 1506 to 2264.
*$p < .05$. **$p < .01$

Both tables also indicate what transitions were most common for members within each initial structure. Across all initial family categories, those who experienced a transition were most likely to transition into a single-parent family. Those from single-parent families who experienced a transition were most likely to transition into stepfamilies.

Table 4.

Percentage of Youth Transitioning from 1997 Family Structure to 1998 Family Structure

	1998 Status						
1997 Status	Any transition [a]	Two	Step	Single	S-E	Ext.	Cohab
Two-parent	5.2	94.8	0.4	4.0	0.3	0.3	0.3
Step	16.3	1.0	83.7	11.1	1.3	0.7	0.7
Single-parent	23.8	4.4	8.8	76.2	2.9	2.8	4.1
Single-parent ext.	46.8	3.9	9.1	22.1	53.2	9.1	2.6
Extended only	21.4	1.4	2.9	4.3	4.3	78.6	1.4
Cohabiting	79.2	29.2	39.6	6.3	0.0	0.0	20.8
Overall sample	18.2	1.6	3.6	5.5	1.3	1.3	1.3

Note. N = 2223

[a] Includes transitions to "other" family structure category (mainly foster and adoptive)

Table 5.

	1999 Status						
1998 Status	Any transition [a]	Two	Step	Single	S-E	Ext.	Cohab
Two-parent	4.5	95.5	0.4	3.3	0.3	0.2	0.1
Step	16.6	0.6	83.4	10.3	1.3	0.9	0.9
Single-parent	16.9	1.6	5.4	83.1	3.7	1.8	3.3
Single-parent ext.	30.4	5.8	2.9	14.5	69.6	7.2	0.0
Extended only	25.3	3.8	2.5	7.6	6.3	74.7	0.0
Cohabiting	68.4	0.0	21.2	34.2	7.9	2.6	31.6
Overall sample	13.2	0.8	2.4	4.7	1.6	0.9	1.0

Percentage of Youth Transitioning from 1998 Family Structure to 1999 Family Structure

Note. N = 2151

[a] Includes transitions to "other" family structure category (mainly foster and adoptive)

Table 6 presents the correlations among the hypothesized mediator variables in the current study. Most of the variables were significantly intercorrelated. The exceptions were correlations between the parenting variables and income or residential mobility, either between or across waves. Income had some positive but small correlations with parenting, and residential mobility shared negative but small relations with parenting; some but not all of these relations were statistically significant. Maternal and paternal monitoring shared

large (r = .65) correlations within each wave, as did maternal and paternal relationship quality (r = .51-.53). Intercorrelations among fathering variables were fairly high, with correlations between paternal monitoring and paternal relationship quality ranging from r = .56 to r = .58 within waves. Maternal variables were also moderately correlated within waves, with maternal monitoring and relationship quality correlations ranging from r = .48 to r = .52. Maternal monitoring was moderately stable across the waves (r = .34 to .58); paternal monitoring showed higher stability (r = .49 to .67). Maternal and paternal relationship quality both showed moderate to large stability coefficients across waves (r = .45 to .72), with paternal relationship quality exhibiting slightly higher stability. Parenting stability coefficients appeared to be higher between Waves 2 and 3 than between Waves 1 and 2. Income (r = .70 over both waves) and residential mobility (r = .92-.95) were both quite stable over time.

Table 6.

Correlation Coefficients Among Hypothesized Mediators

Variable	1	2	3	4	5	6	7	8	9	10	11
Wave 1											
1. Maternal mon	--										
2. Paternal mon	.65**	--									
3. Maternal rel	.48**	.34**	--								
4. Paternal rel	.37**	.56**	.51**	--							
5. Income	.07*	.03	.07*	.12**	--						
6. Res mob	-.06*	-.08**	.02	-.07**	-.15**	--					
Wave 2											
7. Maternal mon	.41**	.36**	.29**	.25**	.09**	-.06**	--				
8. Paternal mon	.34**	.56**	.23**	.41**	.03	-.11**	.65**	--			
9. Maternal rel	.29**	.25**	.50**	.32**	.08**	.00	.48**	.34**	--		
10. Paternal rel	.23**	.40**	.31**	.60**	.10**	-.10**	.37**	.56**	.51**	--	
11. Income	.10**	.13**	.07**	.14**	.70**	-.16**	.07*	.03	.07*	.12**	--
12. Res mob	-.07**	-.13**	-.05**	-.15**	-.19**	.92**	-.09**	-.10**	-.01	-.13**	-.17**
Wave 3											
13. Maternal mon	.34**	.30**	.23**	.20**	.05*	-.09**	.58**	.45**	.37**	.25**	.07**
14. Paternal mon	.30**	.49**	.20**	.35**	.02	-.05	.46**	.67**	.27**	.45**	.07*
15. Maternal rel	.28**	.26**	.45**	.30**	.07**	-.05**	.38**	.34**	.61**	.36**	.07**
16. Paternal rel	.21**	.35**	.29**	.53**	.08**	-.07**	.32**	.47**	.40**	.72**	.10**
17. Income	.11**	.15**	.09**	.17**	.68**	-.18**	.09**	.07*	.06*	.11**	.70**
18. Res mob	-.11**	-.16**	-.07**	-.16**	-.20**	.86**	-.11**	-.13**	-.04	-.15**	-.18**

(*Table continues)*

Table 6, Cont'd.

Correlation Coefficients Among Hypothesized Mediators

Variable	12	13	14	15	16	17	18
Wave 1							
1. Maternal mon							
2. Paternal mon							
3. Maternal rel							
4. Paternal rel							
5. Income							
6. Res mob							
Wave 2							
7. Maternal mon							
8. Paternal mon							
9. Maternal rel							
10. Paternal rel							
11. Income							
12. Res mob	--						
Wave 3							
13. Maternal mon	-.11**	--					
14. Paternal mon	-.08**	.65**	--				
15. Maternal rel	-.06*	.52**	.42**	--			
16. Paternal rel	-.10**	.35**	.58**	.53**	--		
17. Income	-.19*	.05*	.06*	.10**	.09**	--	
18. Res mob	.95**	-.11**	-.08**	-.09**	-.10**	-.19**	--

Note. *Ns* ranged from 1494 to 2264. Mon=monitoring. Rel=relationship. Res mob=residential mobility.
*p<.05. **p<.01.

Concurrent Family Structure Influences on Parenting, Income, Residential Mobility, and Substance Initiation

ANOVAs and regression analyses were conducted to test the first set of hypotheses, that stated that compared to youths in two-parent families, those in all other family structure types would report lower parental monitoring, lower quality parental relationships, lower residential stability, and a greater likelihood of alcohol and marijuana initiation. Regression models all controlled for sex and age. Family structure was entered as a set of dummy-coded variables, with two-parent family as the reference group. Extended relative-only families were combined with the "other" group that previously contained primarily those in adoptive and foster families. This was done because data on residential maternal and/or paternal parenting were necessary to complete the following analyses, and were not available for those in extended relative-only families; thus, no comparisons of extended relative-only families were conducted in regression analyses. The first set of hypotheses was tested for each wave, with the dependent variable (parenting, income, or alcohol/marijuana initiation) measured concurrently with the family structure predictors, with the exception of residential mobility. Because mobility required the construction of a difference score (number of residences lived in at Wave t minus the number of residences lived in at Wave t-1), the hypothesis that non-two-parent family structures would be associated with greater residential mobility was only tested at Waves 2 and 3. For each outcome, the results of the ANOVA will be presented first, in graphical form, followed by regression results (which control for age and sex). Table 7 summarizes mean differences and standard deviations for each variable at each wave for youth in different family structures.

Table 7.

Means and Standard Deviations for Each Scale by Family Structure

	Two-parent		Step-parent		Single Parent	
Scale	*M*	*SD*	*M*	*SD*	*M*	*SD*
Wave 1						
Maternal Relationship	26.09	4.42	25.70	4.50	25.03	4.63
Paternal Relationship	25.74	5.066	23.37	5.81	23.98	6.30
Maternal Monitoring	11.12	2.92	10.33	3.19	10.28	3.27
Paternal Monitoring	9.09	3.78	7.40	3.91	8.01	4.52
Mobility	1.35	0.75	1.92	1.32	1.87	1.20
Income (in 1000s)	59.73	48.27	46.55	44.48	22.73	21.43
Wave 2						
Maternal Relationship	25.28	4.63	24.19	5.39	24.15	4.92
Paternal Relationship	24.93	5.46	21.97	6.69	24.17	5.40
Maternal Monitoring	10.38	2.98	9.40	3.36	10.08	3.28
Paternal Monitoring	8.26	3.86	6.50	4.15	9.02	3.55
Mobility	1.44	0.82	2.30	1.58	2.18	1.46
Income (in 1000s)	68.88	58.10	53.36	54.01	27.86	30.42
Wave 3						
Maternal Relationship	25.11	4.67	24.38	5.13	24.06	5.11
Paternal Relationship	24.58	5.65	21.98	6.01	24.98	4.84
Maternal Monitoring	10.19	3.04	9.50	3.49	9.82	3.63
Paternal Monitoring	7.94	3.83	6.60	4.11	9.47	3.33
Mobility	1.50	0.93	2.61	1.93	2.55	1.81
Income (in 1000s)	68.62	53.52	53.52	43.28	29.29	31.30

Note. *N*s ranged from 1494 to 2264. (*Table continues)*

*$p<.05$ ** $p<.01$.

Table 7, Cont'd.

Means and Standard Deviations for Each Scale by Family Structure

	Single-Ext		Ext-Only		Cohab		
Scale	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*
Wave 1							
Maternal Relationship	25.20	4.42	24.76	4.49	24.56	5.27	5.03**
Paternal Relationship	23.27	5.36	23.90	4.29	20.81	5.89	12.72**
Maternal Monitoring	10.19	3.59	9.73	3.34	9.54	3.47	10.11**
Paternal Monitoring	5.92	4.14	7.00	4.20	6.74	4.18	11.98**
Mobility	2.06	1.93	1.59	0.91	2.28	1.36	25.37**
Income (in 1000s)	22.75	21.69	15.15	20.68	35.29	37.28	51.41**
Wave 2							
Maternal Relationship	23.93	5.41	31.00	n/a	24.19	4.43	4.89**
Paternal Relationship	17.83	8.56	20.00	9.64	22.16	8.44	13.02**
Maternal Monitoring	9.49	3.73	8.00	n/a	10.03	2.92	4.95**
Paternal Monitoring	8.0	3.46	4.33	0.58	7.50	3.39	10.03**
Mobility	2.19	1.62	2.14	1.56	2.70	2.47	35.67**
Income (in 1000s)	18.63	16.14	26.48	37.18	27.76	17.92	36.52**
Wave 3							
Maternal Relationship	23.04	5.40	28.50	4.94	23.20	5.45	4.89**
Paternal Relationship	20.25	4.49	31.50	7.00	23.25	6.045	10.55**
Maternal Monitoring	9.95	3.75	11.00	7.07	10.28	3.53	2.80**
Paternal Monitoring	6.13	3.04	10.00	8.49	8.88	3.23	8.45**
Mobility	2.85	2.48	2.68	1.84	2.48	1.78	46.18**
Income (in 1000s)	20.26	18.42	21.84	26.59	39.07	34.44	42.58**

Note. *N*s ranged from 1494 to 2264. Single-Ext = Single-parent and extended relatives. Ext-Only = Extended relatives only. Cohab = Cohabiting.
*$p<.05$ ** $p<.01$.

Hypothesis 1 contended that parental relationship quality would be lower among those in family structures other than the traditional two-parent structure. Figures 4 and 5 present means for maternal and paternal relationship quality by family structure membership.

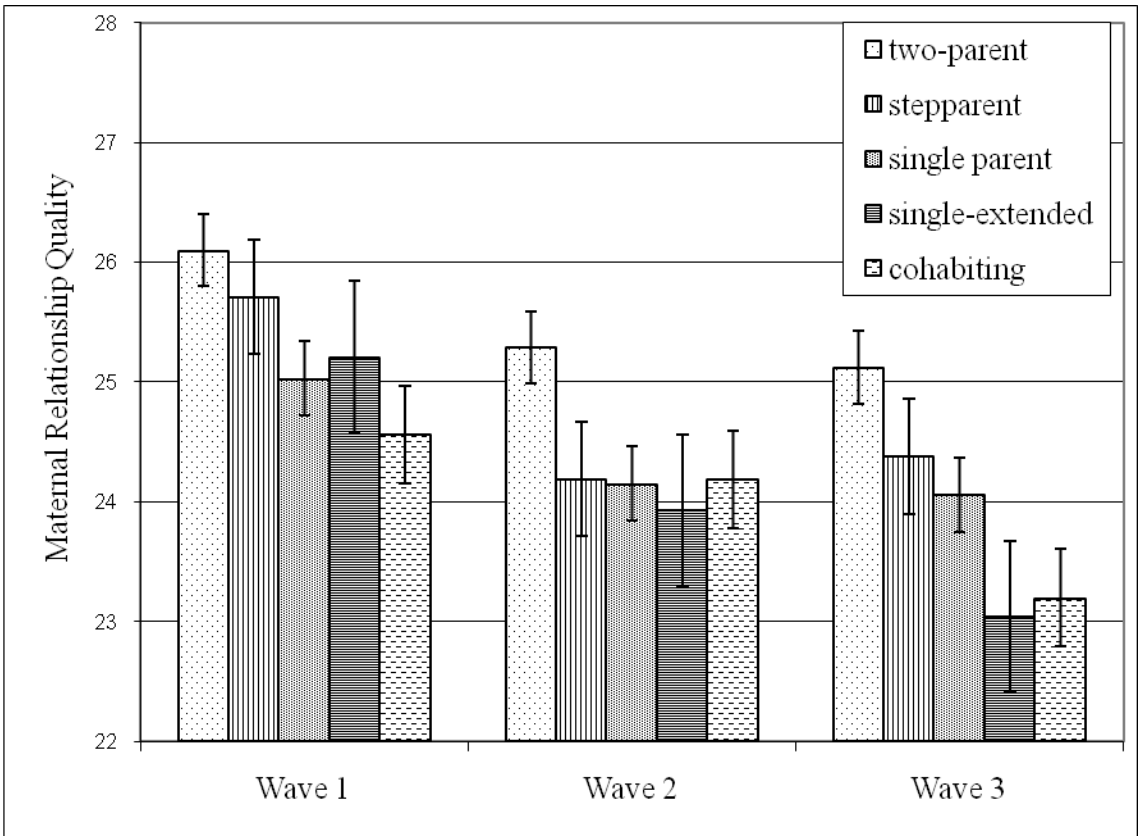

Figure 4. Means for maternal relationship quality by family structure. Bars represent 95% confidence intervals.

Table 8 summarizes the results of regression analyses predicting values of parenting from family structure membership at each wave, controlling for age and sex. Estimates of effect size were calculated by dividing the unstandardized regression weight by the standard deviation of the dependent variable. Regression analyses controlling for age and gender showed that relative to those in two-parent families, at Wave 1, youth in single-parent (d = .23), cohabiting (d = .33), and "other" (d = .32) family types reported poorer maternal relationship quality, while those in step- and single-parent extended families did not. At Waves 2 and 3, living in a step- (d = .12-.14), single-parent (d = .22-.24), or single-extended (d = .27-.41) family was associated with poorer maternal relationship quality than living in a

two-parent family, as was living in a cohabiting (d = .43) family at Wave 3. Youth in all family types reported poorer paternal relationship quality at Wave 1 than those in two-parent families (estimates of effect size ranged from .32 for single and "other" family types to .92 for cohabiting families). Living in a step- (d = .51) or single-parent extended relative (d = 1.24) family was associated with poorer paternal relationship quality at Waves 2 and 3.

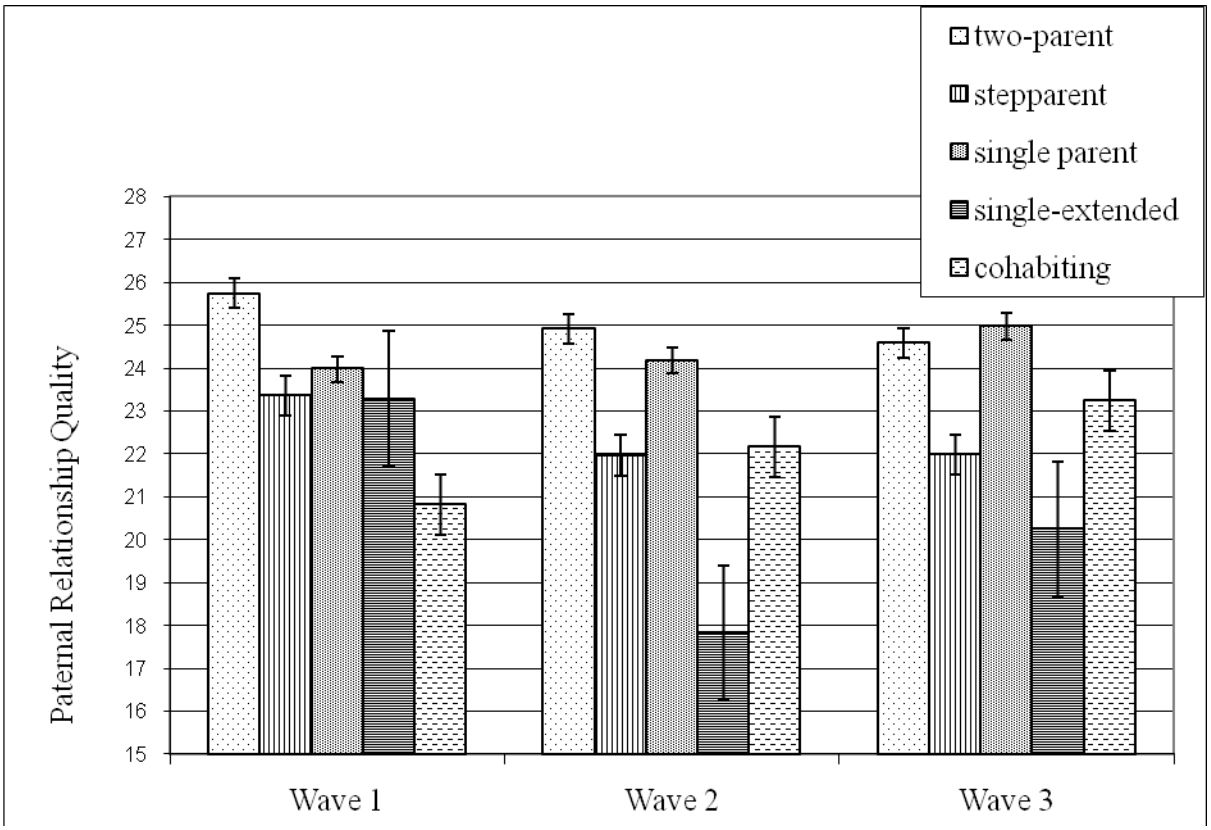

Figure 5. Means for paternal relationship quality by family structure. Bars represent 95% confidence intervals.

Table 8.

Summary of Regression Analyses Using Family Structure to Predict Concurrent Levels of Parenting

	Wave 1		Wave 2		Wave 3	
IVs	B	SE	B	SE	B	SE
Maternal Relationship (Ns = 1922-2263)						
Step	-0.40	0.28	-0.97**	0.30	-0.68*	0.32
Single	-1.06**	0.23	-1.16***	0.26	-1.01***	0.27
Single-Ext	-0.90	0.52	-1.32*	0.63	-2.01***	0.61
Cohab	-1.52*	0.66	-1.11	0.84	-2.14*	1.02
Other	-1.45**	0.47	-0.42	1.01	-0.66	1.00
Paternal Relationship (Ns = 1396-1726)						
Step	-2.35***	0.34	-2.99***	0.38	-2.45***	0.38
Single	-1.74***	0.45	-0.28	0.83	0.43	0.85
Single-Ext	-2.46*	1.05	-7.35**	2.34	-4.52*	2.34
Cohab	-5.00***	1.03	-5.41	2.86	-1.38	2.03
Other	-1.76*	0.75	-2.08	1.28	-1.85	1.36
Maternal Monitoring (Ns = 1920-2262)						
Step	-0.81***	0.20	-0.88***	0.20	-0.72**	0.21
Single	-0.85***	0.16	-0.36*	0.17	-0.31	0.18
Single-Ext	-0.95**	0.36	-0.81*	0.41	-0.21	0.41
Cohab	-1.56**	0.46	-0.46	0.54	-0.06	0.67
Other	-1.62***	0.33	-0.88	0.66	-1.08	0.65
Paternal Monitoring (Ns = 1394-1726)						
Step	-1.68***	0.25	-1.64***	0.26	-1.44***	0.26
Single	-1.06**	0.33	1.16*	0.57	-0.26	0.58
Single-Ext	-3.16***	0.77	-0.21	1.60	-0.26	1.59
Cohab	-2.42**	0.76	0.02	1.95	0.14	1.38
Other	-1.10*	0.55	-1.28	0.88	-1.70	0.92

Note. The values reported are controlling for age and sex. Family structure was dummy coded using two-parent as the reference group. Step = Stepfamily. Single-Ext = Single-parent and extended relatives. Cohab = Cohabiting.
*$p<.05$ ** $p<.01$ ***$p<.001$

Hypothesis 1 also contended that parental monitoring would be highest in two-parent families, and significantly lower in other family types. This was also partially supported.

Figures 6 and 7 present mean differences in maternal and paternal monitoring by family structure membership at each wave.

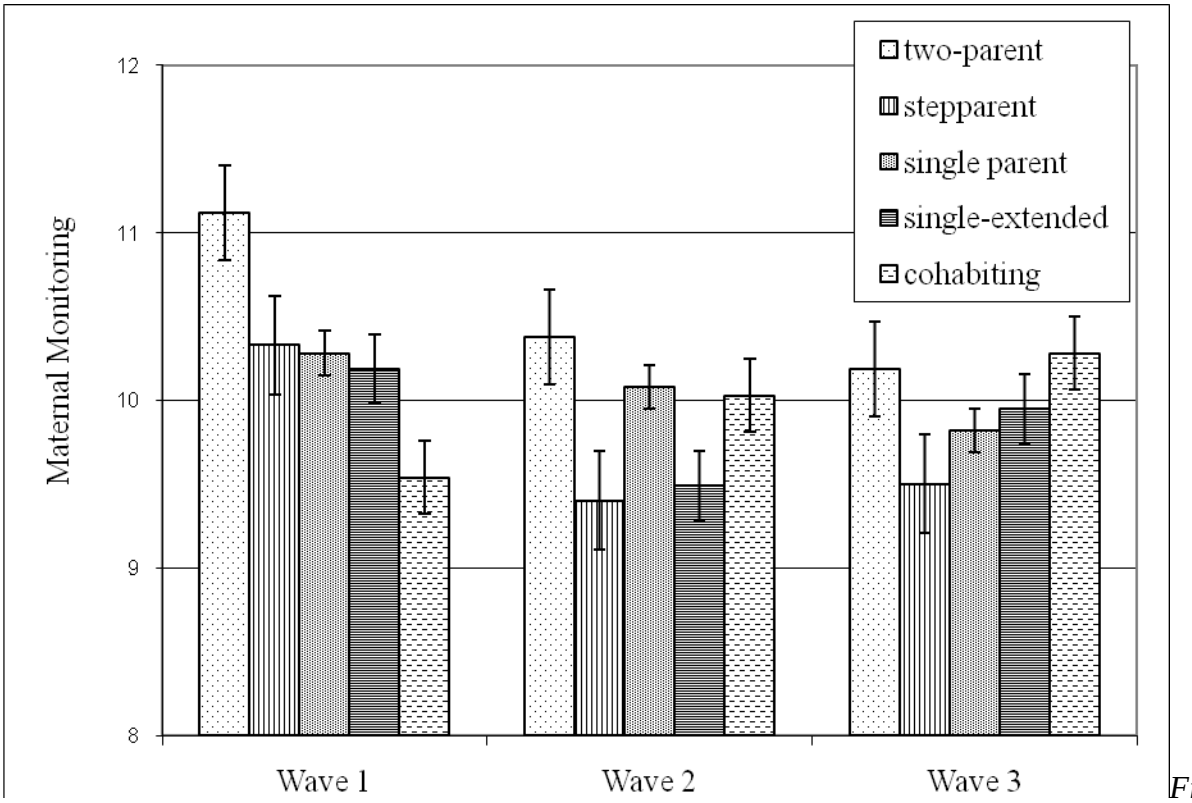

Figure 6. Means for maternal monitoring by family structure. Bars represent 95% confidence intervals.

Maternal and paternal monitoring were each separately regressed on demographic variables (sex, age) and the dummy coded family structure categories in separate analyses at each wave. This tested concurrent differences between two-parent families and family structure types on maternal and paternal monitoring, controlling for age and sex (see Table 8). At Wave 1, youths in two-parent families reported greater maternal and paternal monitoring compared to those in all other family structure types. Estimates of effect sizes for the influence of family structure on maternal monitoring at Wave 1 ranged from .26 for stepfamilies to .52 for "other" families.

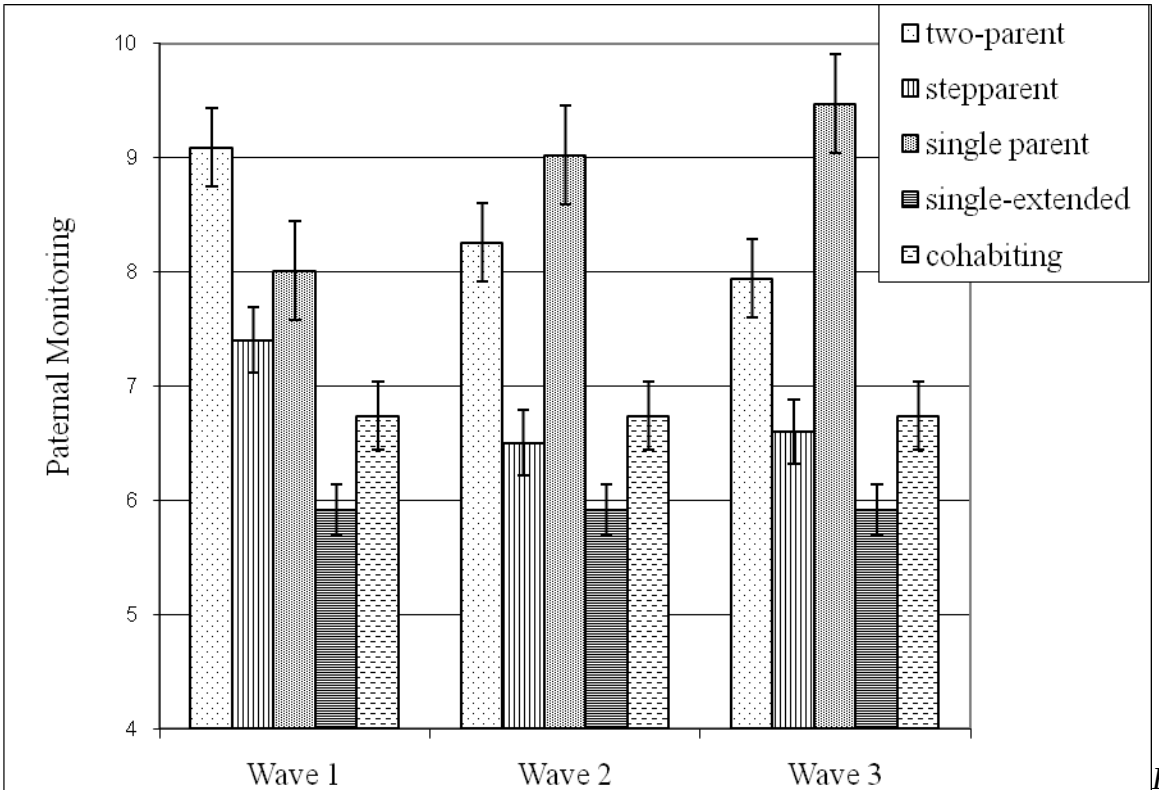

Figure 7. Means for paternal monitoring by family structure. Bars represent 95% confidence intervals.

The effect sizes for family structure on paternal monitoring were larger on average, ranging from .27 for single parent families to .80 for single-parent extended relative families (relative to two-parent families). At Wave 2, living in a step- (d = .23), single (d = .11), or single-extended (d = .26) family was associated with poorer maternal monitoring compared to those in a two-parent family. Living in a step- (d = .41) or single-parent (d = .29) family at Wave 2 was associated with poorer paternal monitoring. Living in a stepfamily at Wave 3 was associated with poorer maternal (d = .22) and paternal monitoring (d = .37), but there were no other differences between those living in two-parent families and other structures.

The third part of Hypothesis 1 predicted that residential mobility would be lower among two-parent families than any other family structure types. Differences in residential mobility by family structure were also examined using ANOVA and regression analyses.

Figure 8 illustrates mean differences in residential mobility by family structure, and Table 9 summarizes the results of the regression analyses predicting residential mobility and income.

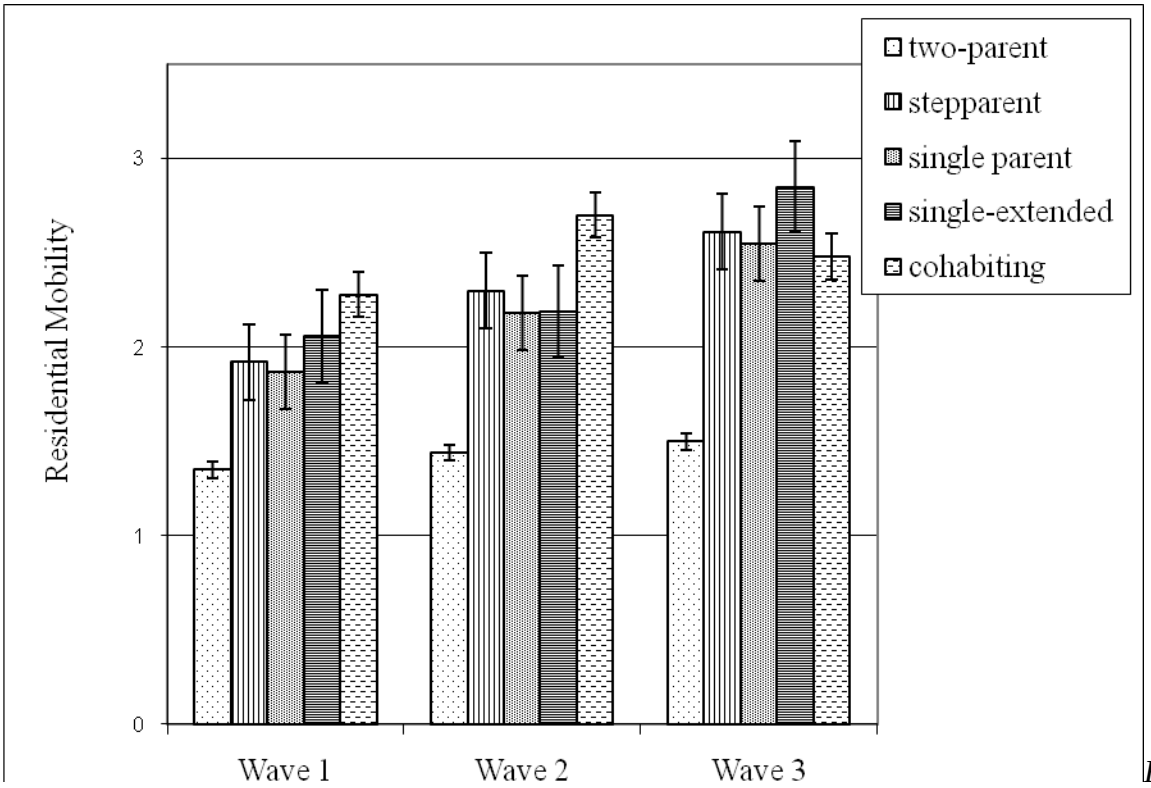

Figure 8. Means for number of households lived in since age 12 by family structure. Bars represent 95% confidence intervals.

Regression analyses indicated that levels of residential mobility were lower for two-parent families than any other family type at Waves 2 and 3, controlling for age and sex. At Wave 2, the first wave for which the difference score was created, living in any family structure other than two-parent was associated with greater residential mobility (more household residences in the prior year), with estimates of effect size ranging from .29 for single-parent and single-parent extended relative families to .66 for cohabiting families. Living in a step- (d = .24), single-parent (d = .25), or "other" (d = .20) family type was associated with higher levels of residential mobility at Wave 3 (controlling for mobility at Wave 2). For instance, at Wave 3, those in single-parent extended relative families had lived

in 2.85 residences since age 12 on average, whereas those in two-parent families had lived in only 1.5 residences over that time period.

Table 9.

Summary of Regression Analyses Using Family Structure to Predict Concurrent Levels of Residential Mobility and Income

	Wave 1		Wave 2		Wave 3	
IVs	B	SE	B	SE	B	SE
			Residential Mobility (Ns = 1976-2029)			
Step			0.36***	0.04	0.24***	.03
Single			0.29***	0.04	0.25***	.03
Single-Ext			0.29***	0.08	0.15*	.07
Cohab			0.66***	0.11	0.25**	.09
Other			0.44***	0.07	0.20***	.05
			Income (in thousands) (Ns = 1262-1889)			
Step	-13.18***	2.89	-15.64***	3.95	-15.65***	3.38
Single	-37.10***	2.35	-40.43***	3.46	-40.79***	3.30
Single-Ext	-37.27**	5.57	-50.74***	7.93	-51.16***	7.11
Cohab	-24.47***	6.41	-43.36***	10.60	-29.78**	10.48
Other	-36.64***	4.58	-34.44***	6.97	-43.77***	6.71

Note. The values reported are controlling for age and sex. Family structure was dummy coded using two-parent as the reference group. Step = Stepfamily. Single-Ext = Single-parent and extended relatives. Cohab = Cohabiting.
*$p<.05$ ** $p<.01$ ***$p<.001$

Finally, it was hypothesized that income would be highest among those from two-parent families, followed by stepfamilies, and lower for those from single-parent families. Mean differences in income by family structure are illustrated in Figure 9.

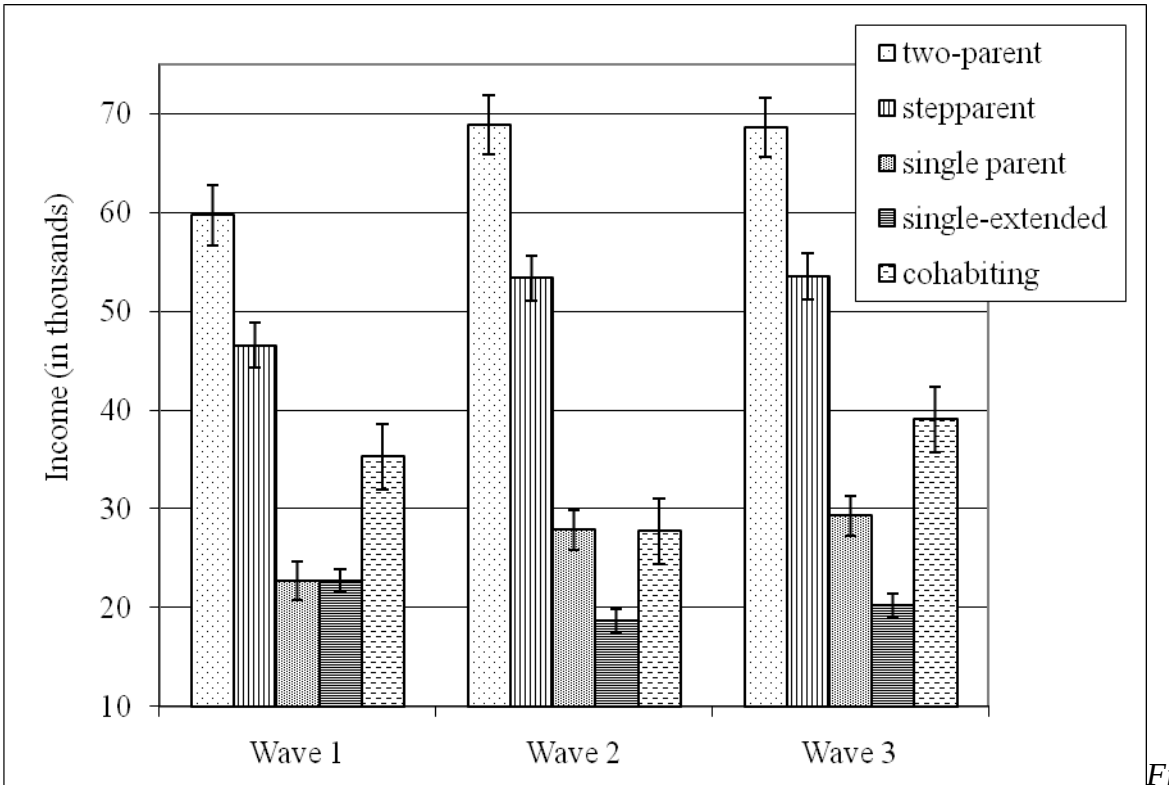

Figure 9. Differences in income (in thousands) by family structure. Bars represent 95% confidence intervals.

Regression analyses indicated that living in any family type other than a two-parent family was associated with lower household income at every wave. Effect sizes for the effect of living in a stepfamily compared to a two-parent family were in the medium range at each wave, from 0.29 to 0.32, with partial regression coefficients indicating that, controlling for age and sex, being in a stepfamily was associated with approximately $13,000 lower household income at Wave 1 and almost $16,000 lower at Wave 3, compared to those in a two-parent family. Effect sizes for the influence of living in other family types were all large, ranging from 0.55 for cohabiting families (associated with over $43,000 less in income at Wave 2) to 1.04 for single-parent extended relative families (associated with over $50,000 less in income at Wave 3), compared to living in a two-parent family.

The fourth part of Hypothesis 1 stated that alcohol and marijuana initiation would be less likely among those in two-parent families compared to those from other family structure types. Descriptive statistics illustrating the percentage of youth from each family structure category who reported having initiated substance use at each wave are presented in Table 10, and a summary of the results of these logistic regression analyses is presented in Table 11. The percentage of youth who had initiated alcohol by Wave 1 ranged from 20% to 28%, with the smallest percentage of initiators living in two-parent families, and the largest percentage in single-parent or single-parent unrelated adult (cohabiting) families. At Wave 1, marijuana initiation also varied by family structure, with only 4% of youth from two-parent families having initiated, and 12% from single-parent unrelated adult and "other" families having initiated.

Table 10.

Percentage of Participants Reporting Substance Initiation at Each Wave by Family Structure

	Wave 1		Wave 2		Wave 3	
Concurrent Family Structure	Alcohol	Marijuana	Alcohol	Marijuana	Alcohol	Marijuana
Two-parent	20	4	39	14	53	20
Stepfamily	27	8	49	20	60	32
Single-parent	28	9	49	22	62	31
Single-parent extended	26	10	47	19	45	15
Extended only	22	8	38	18	59	33
Single parent unrelated adult	28	12	60	18	64	39
Other[b]	21	12	43	33	60	29

Note. *N*s ranged from 2133 to 2336.

Inferential statistics in the form of the odds ratios and confidence intervals produced by the logistic regression analyses are presented in Table 11.

Table 11.

Summary of Logistic Regression Analyses Using Family Structure Status to Predict Concurrent Substance Initiation

	Wave 1		Wave 2		Wave 3	
IVs	OR	95% CI	OR	95% CI	OR	95% CI
			Alcohol Initiation			
Step	1.46**	1.10-1.94	1.53***	1.20-1.96	1.36**	1.05-1.75
Single	1.51***	1.19-1.90	1.49***	1.21-1.84	1.45**	1.17-1.79
Single-Ext	1.37	0.82-2.31	1.33	0.82-2.16	0.73	0.46-1.15
Cohab	1.50	0.79-2.84	2.30**	1.20-4.39	1.56	0.76-3.21
Other	1.10	0.66-1.69	1.02	0.70-1.49	1.25	0.86-1.82
			Marijuana Initiation			
Step	1.89**	1.15-3.11	1.61**	1.17-2.22	1.92**	1.44-2.54
Single	2.11***	1.41-3.16	1.79***	1.37-2.35	1.83**	1.44-2.32
Single-Ext	2.41*	1.10-5.28	1.45	0.77-2.72	0.72	0.38-1.36
Cohab	3.02*	1.23-7.46	1.35	0.59-3.13	2.66**	1.30-5.44
Other	2.28*	1.15-4.51	1.94**	1.23-3.04	1.86**	1.24-2.78

Note: N = 2133 to 2336. The values reported are controlling for age and sex. OR = odds ratio. Ext = extended. Cohab = cohabiting.
*p<.05. **p<.01 ***p<.001.

Compared to youth in two-parent families, those living in a step- or single-parent family had a higher likelihood of alcohol initiation at all three waves (ORs = 1.36 to 1.53) as did those in cohabiting family structures at Wave 2 (OR = 2.3). Compared to those in two-parent families, youth in stepfamilies, single-parent families, and "other" family types had a higher likelihood of marijuana initiation at all three waves (ORs = 1.61 to 2.28). Those living in single-parent extended relative families had a higher likelihood of marijuana initiation at

Wave 1 (OR = 2.41), as did those in cohabiting families at Waves 1 (OR = 3.02) and 3 (OR = 2.66).

Race by Family Structure Effects on Concurrent Initiation

To test for possible race-moderated effects on the relation between family structure and concurrent initiation, interaction terms were constructed for race (African American or Caucasian) and the dummy coded family structure variables. Controlling for age and sex, Caucasian race was a significant predictor of alcohol initiation at every wave (ORs 1.28 at Wave 1 to 1.85 at Wave 3) and a significant predictor of marijuana initiation at Waves 2 (OR = 1.66) and 3 (OR = 1.60).

Alcohol initiation. No significant interactions of race by family structure status emerged when testing for concurrent effects at Wave 1. At Wave 2, controlling for the influence of family structure on Wave 1, living in an "other" family structure was associated with a greater likelihood of alcohol initiation for Caucasian (OR = 4.61) compared to African American (OR = 1.92) youth, Wald test = 3.76, $p < .05$. At Wave 3, controlling for the influence of family structure at Wave 2, living in a stepfamily was associated with a greater likelihood of alcohol initiation for Caucasian (OR = 1.62) compared to African American (OR = 0.59) youth, Wald test = 10.00, $p<.05$.

Marijuana initiation. At Wave 1, race interacted with family structure status for the categories of single-parent family and "other" (adoptive, foster, and extended relative only families), such that membership in these categories was associated with a greater likelihood of marijuana initiation for Caucasian compared to African American youth. Specifically, for single-parent family status, the odds ratio associated with increased risk of marijuana use was

2.97 for Caucasian youth and 1.10 for African youth (Wald test = 3.83, $p<.05$); and for "other" family status, the odds ratio associated with increased risk of marijuana use was 6.29 for Caucasian youth and 0.79 for African youth (Wald test = 6.59, $p<.05$). Living in an "other" family structure was more highly related to marijuana initiation for Caucasian (OR = 10.80) than African American youth (OR = 3.42) at Wave 2 as well, controlling for the influence of Wave 1 family structure (Wald test = 4.23, $p<.05$). There were not any race by family structure interactions at Wave 3 for marijuana initiation.

Selection Effects: The Influence of Parenting and Youth Substance Initiation on Subsequent Family Structure Transitions

The second hypothesis focused on selection effects, predicting that those youth whose married parents (either biological or step) transitioned into any other family structure in the immediately subsequent wave would be characterized by (a) lower levels of parental monitoring and relationship quality, and (b) a higher likelihood of substance initiation at the prior wave. These hypotheses were partially supported (see Table 12).

Table 12.

Summary of Univariate Logistic Regression Analyses Predicting Parental Separations from Parenting Variables and Youth Substance Initiation at Previous Wave

	Wave 2			Wave 3		
Predictors	*N*	OR	95% CI	*N*	OR	95% CI
Maternal Monitoring	2192	0.95	0.89-1.02	2007	0.94	0.88-1.01
Paternal Monitoring	1658	0.92**	0.87-0.98	1497	0.84**	0.79-0.89
Maternal Relationship	2193	0.99	0.99-1.0	2048	0.97	0.93-1.01
Paternal Relationship	1658	0.93**	0.89-0.96	1499	0.91***	0.87-0.93
Alcohol Initiation	2265	1.80**	1.13-2.86	2183	1.48	0.94-2.36
Marijuana Initiation	2265	1.84	0.90-3.77	2177	1.34	0.76-2.36

Note. The values reported are controlling for age and sex.
*$p<.05$. **$p<.01$ ***$p<.001$.

In terms of parenting predictors, lower quality paternal parenting (monitoring and relationship) was associated with subsequent marital separations, whereas maternal parenting was unrelated to subsequent separations. Odds ratios for quantitative predictors reported in text were put into a similar metric for comparison purposes by calculating adjusted odds ratios for individuals who differed by one SD on the predictor variables. These will be referred to as adjusted ORs where reported. Specifically, maternal monitoring was not predictive of subsequent parental separations, but lower paternal monitoring was (adjusted ORs: .50 to .73). There were no significant relations between maternal relationship quality and subsequent separations, but lower paternal relationship quality at the previous wave was associated with separations at Waves 2 and 3 (adjusted ORs: .59 to .68). Alcohol initiation at Wave 1 was associated with a higher probability of separations at the next wave (OR: 1.8), but alcohol initiation at Wave 2 did not predict separations at Wave 3. Marijuana initiation was not prospectively associated with separations across any waves.

Interactions between Race and Substance Initiation and Parenting in the Prediction of Parental Separations

Race was not a significant predictor of parental separations. No race by alcohol initiation interactions emerged in the prediction of parental separations at either wave tested. Marijuana initiation and race interacted (Wald test = 3.86, $p<.05$) such that initiation at Wave 1 was a stronger predictor of parental separations one year later for African American (OR = 4.57) compared to Caucasian (OR = 1.05) youth. This effect was not replicated at the next wave.

The Influence of Family Structure Transitions on Substance Initiation

The third hypothesis predicted relations between specific changes in family structure from one wave to the next and subsequent substance initiation, controlling for age and sex. More specifically, it was hypothesized that the following changes in family structure would be associated with a greater likelihood of adolescents' substance initiation: transitions from two-parent families to all other family types; and transitions from a single-parent family to a cohabiting or stepfamily. The following changes were hypothesized to be associated with a lower likelihood of substance initiation: transitions from a single parent to a single parent/extended relative family; and transitions from a cohabiting family to a stepfamily.

This hypothesis was tested by creating a series of dummy coded variables in three categories: (1) two-parent family transitions; (2) single-parent family transitions; and (3) cohabiting family transitions. The reference group for two-parent family transitions was "always two-parent" over the course of two consecutive waves. Three groups were compared to this reference group: (a) never two-parent (over the course of two consecutive waves); (b) transition from two-parent to anything else; and (c) transition from anything else to two-parent. Although members of the first group did not experience a transition *per se*, construction of this group was needed for the purpose of making systematic comparisons and capturing all youth in this category. Additionally, it added some information above and beyond the two-parent/not two-parent comparisons made in previous analyses in that it captured the cumulative effects of either living or not living consistently within this family structure. The results of these analyses are summarized in Table 13.

Beginning with the results for alcohol initiation, compared to those continually in a two-parent family at Waves 1 and 2, those who were never in a two parent family in that time

period were more likely to have initiated alcohol use at Wave 2. There was no difference between those who transitioned out of or into a two-parent family and those continually in a two-parent family. This same pattern held for predicting alcohol initiation at Wave 3.

Table 13.

Summary of Logistic Regression Analyses Predicting Substance Initiation from Selected Family Structure Transitions

	Alcohol		Marijuana	
	Wave 2	Wave 3	Wave 2	Wave 3
Predictors	Odds Ratios			
Transition Type 1: Two-Parent				
Never Two-Parent	1.44**	1.32**	1.71***	1.80***
Transition from Two-Parent	1.55	1.41	1.93***	2.01**
Transition to Two-Parent	0.78	1.05	1.06	2.14
Transition Type 2: Single-Parent				
Not Single-Parent at t-1	0.79*	0.83	0.71*	0.74
Single to Step	1.31	1.43	1.27	1.56
Single to Cohabiting	1.55	0.93	0.59	1.62
Single to Single-Ext	0.64	0.43	0.53	0.13*
Single to Other	0.69	0.87	1.11	1.12
Transition Type 3: Cohabiting				
Not Cohabiting at t-1	0.34	0.64	1.91	0.98
Cohabiting to Step	0.35	1.49	2.65	1.81
Cohabiting to Other	0.34	1.24	2.31	3.59

Note. The values reported are controlling for age and sex. Ns range from 2141 to 2215. *p<.05. **p<.01 ***p<.001.

The same analyses were conducted to predict marijuana initiation. Compared to those continually in a two-parent family at Waves 1 and 2, those who were never in a two-parent family in that time period, and those who transitioned from a two-parent family to another family type, were more likely to have initiated marijuana use at Wave 2. There was no difference in initiation status from those continually in a two-parent family vs. those moving from another family type to a two-parent family. This same pattern held for predicting marijuana use at Wave 3.

Next, logistic regression was used to explore the hypotheses of Transition Type 2: single parent to other. The reference group for single-parent family transitions was "always single parent" over the course of two consecutive waves. Five groups were compared to this reference group: (a) not single-parent at Wave t-1; (b) transition from single-parent to stepparent; (c) transition from single-parent to cohabiting family; (d) transition from single-parent to single-parent extended relative; and (e) transition from single-parent to anything else. It should be noted that the majority of those in the first group (not single-parent at Wave t-1) lived in two-parent families due to the large percentage of youth overall living in two-parent families. Compared to those who were continuously single, those who were not single at Wave 1 were less likely to have initiated alcohol use at Wave 2. However, transitioning from a single to a step, cohabiting, single-parent extended, or "other" family type was not significantly different from remaining continuously single-parent family in terms of likelihood of alcohol initiation at Wave 2. No group was significantly different from the continuously single group in predicting alcohol use at Wave 3.

Compared to those who were continuously single, those who were not single at Waves 1 and 2 were less likely to have initiated marijuana use at the subsequent wave. However, transitioning from a single to a step, cohabiting, single-parent extended, or "other" family type was not significantly different from remaining in a continuously single-parent family in terms of likelihood of marijuana initiation at Wave 2. Marijuana initiation at Wave 3 was less likely among those who transitioned from a single-parent family to a single-parent extended relative family between Waves 2 and 3, compared to those continuously in a single parent family from Wave 2 to Wave 3.

The last step of this stage of the analysis was to compare groups within Transition Type 3: Cohabiting to other. The reference group for cohabiting family transitions was "always cohabiting" over the course of two consecutive waves. Three groups were compared to this group: (a) not cohabiting at Wave t-1; (b) transition from cohabiting to stepparent; and (c) transition from cohabiting to anything else. There was no difference in alcohol initiation at Waves 2 or 3 between those in continuously cohabiting families and those who were not in a cohabiting family at Wave 1 or those who transitioned to a stepfamily or other family type. This was also true for marijuana initiation.

Family Structure Transitions by Race on Substance Initiation

A significant interaction was found between never being in a two-parent family across Waves 1 and 2 and race, such that never being in a two-parent family was more strongly associated with alcohol initiation for Caucasian youth (OR = 2.01) compared to African American youth (OR = 1.21) Wald test = 5.23, $p<.05$. No interactions were seen between transition category and race in the prediction of marijuana initiation.

In examining Race by Transition interactions in the second category of transitions, those from single-parent families to other family types, one interaction emerged, of race by "not single at Wave 1." Specifically, those who were not in a single-parent family at Wave 1 were less likely to initiate alcohol use by Wave 2 (Wald test = 8.88, $p<.05$), and this effect was stronger for Caucasian (OR = 0.52) than for African American (OR = 1.06) youth, for whom it had little effect. No interaction effects were found in predicting marijuana initiation at either wave from this category of transitions.

The last category of transitions compared those continuously in cohabiting families to those in other transition categories. No main effects of race or transition category emerged in these models, nor did any interactive effects in predicting alcohol or marijuana initiation at either wave.

The Influence of Family Structure Transitions on Parenting, Income, and Residential Mobility

Baron and Kenny (1986) described a causal steps approach to demonstrating mediation. Although theirs is not necessarily the best approach for concluding the likely presence or absence of mediated effects when using logistic regression (see MacKinnon, 2008), it provides a useful framework for presenting a picture of the results. The four steps Baron and Kenny (1986) outlined for demonstrating mediation are (1) showing a significant relation of the independent to the dependent variable (in this case, the relations between family structure transitions and substance initiation that have been previously presented); (2) showing a significant relation of the independent variable to the hypothesized mediating variable(s); (3) demonstrating that the mediating variable is significantly related to the dependent variable controlling for the independent variable; and (4) demonstrating that the regression coefficient representing the strength of the relation between the independent and the dependent variable is larger without the mediator(s) in the equation than with (see also MacKinnon, Fairchild, & Fritz, 2007). The following sections present the results of analyses testing steps 2 through 4, noting any significant instances of race-moderated effects.

Relations between family structure transitions and changes in the hypothesized mediating variables were explored using linear regression and are summarized in Tables 14 to 16.

Transitions within Two-parent Families

Transition status was not a significant predictor of changes in maternal monitoring from Wave 1 to Wave 2 or from Wave 2 to Wave 3 (see Table 14). However, being in the "never two-parent" group was related to a reduction in maternal relationship quality from Wave 1 to 2 and Wave 2 to 3 compared to those continuously in a two-parent family (*d*s = .14 and .07, respectively). Transitioning into or from a two-parent family was unrelated to changes in maternal relationship quality at Wave 2 or 3 (see Table 15).

Table 14.

Summary of Regression Analyses Predicting Changes in Parental Monitoring from Selected Family Structure Transitions

	Maternal Monitoring				Paternal Monitoring			
	Wave 2		Wave 3		Wave 2		Wave 3	
Predictors	B	SE	B	SE	B	SE	B	SE
Transitions Type 1: Two-Parent								
Never Two-Parent	-0.22	0.13	-0.09	0.12	-0.47*	0.21	-0.11	0.18
Transition from Two-Parent	-0.36	0.46	-0.46	0.44	1.02	0.74	1.65	0.88
Transition to Two-Parent	0.11	0.51	0.71	0.77	0.37	0.61	2.11	1.19
Transition Type 2: Single-Parent								
Not Single-Parent at t-1	-0.13	0.17	-0.06	0.15	-0.74	0.62	-1.18*	0.48
Single to Step	-0.14	0.47	-0.80	0.57	0.53	0.94	0.62	1.38
Single to Cohabiting	0.30	0.66	0.11	0.75	0.62	3.34	-0.20	1.74
Single to Single-Ext	0.05	0.78	0.22	0.70	-0.77	3.34	-2.16	2.10
Single to Other	0.52	0.60	-0.85	1.09	-0.19	0.93	0.10	1.53
Transition Type 3:Cohabiting								
Not Cohabiting at t-1	-0.36	1.01	0.47	0.89	-2.05	2.33	-0.77	1.68
Cohabiting to Step	-1.07	1.29	1.78	1.40	-1.61	2.51	-1.63	2.65
Cohabiting to Other	-1.24	1.18	0.01	1.11	-2.01	3.29		

Note. The values reported are controlling for age and sex, and at Waves 2 and 3, previous levels of parenting. Ns range from 1392 to 2006.
*p<.05. **p<.01 ***p<.001.

Being in the "never two-parent" group was associated with a reduction in paternal monitoring at Wave 2 compared to those continuously in a two-parent family (*d* = .12). Transitioning into or from a two-parent family was unrelated to changes in paternal

monitoring at Wave 2. Being in the "never two-parent" group was also related to a reduction in paternal relationship quality at Waves 2 and 3 compared to those continuously in a two-parent family (d = .24). Transitioning into or from a two-parent family was unrelated to changes in paternal relationship quality at Waves 2 or 3.

Transition status was significantly related to changes in household income at Wave 2 (see Table 16). Compared to those in continuously two-parent families, not being in a two-parent family at either wave was associated with a decrease in household income of over $9,000 at Wave 2; transitioning from a two-parent family to another family type was associated with over $20,000 less in income. At Wave 3, membership in all other transition groups was negatively associated with a change in household income compared to belonging to the continuously two-parent group (ranging from a decrease of approximately $14,000 for "never two-parent" to $36,000 for "transition from two-parent"). Contrary to hypothesis, this pattern included transitions to two-parent families, which was associated with a loss of $18,000 at Wave 3 compared to those consistently in two-parent families (members of this group were hypothesized to increase in income).

Not living in a two-parent family across two waves was associated with more residential moves between Waves 1 and 2 (d = .49, B = .33, or 1/3 of a move), as was transitioning from a two-parent family to another family type between Waves 1 and 2 and 2 and 3 (ds = .90 and 1.0 and Bs = .61 and .53 respectively), compared to living in a two-parent family at both waves.

Table 15.

Summary of Regression Analyses Predicting Changes in Parental Relationship Quality from Selected Family Structure Transitions

	Maternal Relationship Quality				Paternal Relationship Quality			
	Wave 2		Wave 3		Wave 2		Wave 3	
Predictors	B	SE	B	SE	B	SE	B	SE
Transition Type 1: Two-Parent								
Never Two-Parent	-0.69**	0.19	-0.36*	0.18	-1.43***	0.29	-0.32	0.25
Transition from Two- Parent	-0.12	0.66	0.13	0.65	-0.51	1.04	2.05	1.22
Transition to Two-Parent	0.12	0.74	-0.03	1.13	0.88	0.85	0.91	1.65
Transition Type 2: Single-Parent								
Not Single-Parent at t-1	0.31	0.24	0.16	0.22	0.16	0.88	-0.78	0.67
Single to Step	0.06	0.69	-0.55	0.84	-0.68	1.32	3.09	1.92
Single to Cohabiting	0.30	0.97	-1.45	1.10	1.44	4.76	-0.17	2.42
Single to Single-Ext	-0.07	1.14	-0.85	1.03	0.46	4.77	-1.75	2.93
Single to Other	0.33	0.89	1.11	1.61	0.61	1.32	0.73	2.12
Transition Type 3: Cohabiting								
Not Cohab at t-1	0.87	1.49	0.88	1.31	3.06	3.32	-1.32	2.33
Cohabiting to Step	1.75	1.89	-0.52	2.06	2.66	2.57	-6.06	3.69
Cohabiting to Other	0.27	1.74	-0.01	1.63	4.10	4.69		

Note. The values reported are controlling for age and sex, and at Waves 2 and 3, previous levels of parenting. Ns range from 1396 to 2010.
*p<.05. **p<.01 ***p<.001.

Table 16.

Summary of Regression Analyses Predicting Income and Residential Mobility from Selected Family Structure Transitions

	Income (in thousands)				Residential Mobility			
	Wave 2		Wave 3		Wave 2		Wave 3	
Predictors	B	SE	B	SE	B	SE	B	SE
Transition Type 1: Two-Parent								
Never Two-Parent	-9.33***	2.22	-14.01***	2.12	0.33***	0.03	0.20.	0.02
Transition from Two-Parent	-21.04**	7.86	-36.45**	12.51	0.61***	0.10	0.53***	0.08
Transition to Two-Parent	-3.66	7.45	-18.24**	6.90	0.23	0.13	0.23	0.13
Transition Type 2: Single-Parent								
Not Single-Parent at t-1	6.66*	2.91	10.78***	2.74	-0.08*	0.04	-0.10***	0.03
Single to Step	-1.64	7.78	9.06	9.52	0.40***	0.11	0.21	0.10
Single to Cohabiting	-0.78	11.06	14.21	12.11	0.35*	0.15	0.14*	0.13
Single to Single-Ext	-4.45	11.97	-1.05	13.68	0.56	0.17	0.28*	0.13
Single to Other	1.60	7.89	-18.83	14.76	0.55*	0.11	0.53***	0.11
Transition Type 3: Cohabiting								
Not Cohabiting at t-1	12.69	13.00	8.51	12.72	0.34	0.25	0.26	0.18
Cohabiting to Step	7.16	17.87	-5.92	28.33	1.07***	0.32	0.20	0.26
Cohabiting to Other	3.03	16.02	2.88	16.37	0.86**	0.29	0.49**	0.22

Note. The values reported are controlling for age, sex, and previous levels of income and residential mobility. *N*s range from 1426 to 2035.

*p<.05. **p<.01 ***p<.001.

Transitions from Single-parent Families

Transitions from single-parent families were not significant predictors of changes in maternal monitoring or maternal relationship quality from Wave 1 to Wave 2 or 2 to 3 (see Tables 14 and 15). No transition group within the single-parent family category was significantly associated with changes in paternal monitoring from Wave 1 to Wave 2. From Waves 2 to 3, being in the "not single at Wave 2" group was associated with a decrease in paternal monitoring at Wave 3 as compared to the continuously single-parent group (d = .30). Transition status within this category was not a significant predictor of changes in paternal relationship quality from Wave 1 to Wave 2 or 2 to 3.

Compared to those in the continuously single group, being in the "not single at Wave t-1" group was associated with an almost $7,000 increase in household income from Wave 1 to Wave 2 and an almost $11,000 increase from Waves 2 to 3 (see Table 16). This was consistent with data suggesting income among those in single-parent families was among the lowest of all family types at any wave. Compared to those living in a continuously single family, those not living in a single family at Wave 1 also experienced .08 fewer residential moves by Wave 2 and .1 fewer moves by Wave 3 (representing quite small but significant advantages). Those transitioning from a single-parent family at Wave 1 to a cohabiting, step, or "other" family at Wave 2 all experienced between .35 to .55 more residential moves compared to those continuously in a single-parent family. From Waves 2 to 3, there was no difference between those in a continuously single family versus those who transitioned from a single to a stepfamily in terms of residential moves, but those who transitioned to cohabiting families experienced .14 more moves, those who transitioned to "other" families

experienced .53 more moves, and those who transitioned to single-parent extended relative families experienced .28 more moves on average.

Transitions from Cohabiting Families

Relatively few youth lived in cohabiting families at any wave, and of those youth, a smaller number experienced a transition during the time period studied. Thus, analyses within this transition type proved difficult, and there were some analyses that could not be run due to the small number of participants in specific subgroups. These will be noted in the following discussion of results. Controlling for previous level of monitoring, transition status was not a significant predictor of changes in maternal monitoring from Wave 1 to Wave 2 or from Wave 2 to 3. However, the transition from the cohabiting family group to the "other" group could not be included in analyses involving paternal parenting variables because of the small number in this subgroup. Transition status within the cohabiting family category was also not a significant predictor of changes in household income from Wave 1 to Wave 2 or at Wave 3 (see Table 16). Compared to those in a continuously cohabiting family, those that moved to a step- (d = 1.57) or other (d = 1.26) family type experienced more residential moves between Waves 1 and 2; those transitioning to the "other" family type also experienced more moves between Waves 2 and 3 (d = .92).

The Influence of Parenting, Income, and Residential Mobility on Substance Initiation

According to the Baron and Kenny (1986) framework, the next step in the mediational analysis is to demonstrate a significant relation between the hypothesized mediators and the dependent variable. This summarizes the results of the logistic regressions performed to explore the influence of parenting, income and residential mobility on

substance initiation. Several models were run. First, the influence of each mediator variable on concurrent substance initiation was examined in a univariate predictor model. In predicting initiation at Waves 2 and 3, level of the mediator variable at the preceding wave was also entered into the models. Those models indicated that lower levels of four parenting variables (maternal and paternal monitoring and relationship quality), when entered in separate models, were concurrently associated with having initiated alcohol and marijuana use at Waves 1, 2, and 3.

A series of multivariate predictor models was next constructed to examine the combined effects of sets of mediators. Different combinations of the parenting variables were entered by combining maternal and paternal variables to examine the overall effects of "monitoring" vs. "relationship quality." Finally, a large multivariate model with all hypothesized mediator variables was constructed. Interaction terms were also constructed for each model to examine possible race-moderated effects.

The Effects of Parenting on Substance Initiation

Monitoring. Both maternal and paternal monitoring were associated with concurrent alcohol initiation at Waves 1, 2 and 3 (controlling for prior level of parenting at Waves 2 and 3). Adjusted ORs for maternal monitoring ranged from 0.88 at Wave 2 to 0.93 at Waves1 and 3. Adjusted ORs for paternal monitoring ranged from 0.85 at Wave 1 to 0.90 at Wave 2. These effects can be seen in Tables 21 and 23. In a multivariate model, controlling for maternal and paternal monitoring at the previous wave, maternal monitoring at Wave 2 remained a significant concurrent predictor of alcohol initiation (adjusted OR = 0.79);

whereas paternal monitoring was a significant concurrent predictor at Wave 3 (adjusted OR = 0.81) (see Table 17).

Table 17.

Summary of Hierarchical Logistic Regression Analysis for Monitoring Variables Predicting Alcohol Initiation (with and without Monitoring at Prior Wave)

	Model 1				Model 2			
	Wave 2		Wave 3		Wave 2		Wave 3	
Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	1.44*	1.15-1.80	1.24	0.99-1.55	1.45*	1.16-1.81	1.22	0.98-1.53
Sex[a]	1.17	0.94-1.47	1.03	0.82-1.29	1.14	0.91-1.43	1.03	0.82-1.30
Maternal Mon 1997	0.97	0.93-1.02			1.00	0.95-1.05		
Paternal Mon 1997	0.93*	0.89-0.96			0.95*	0.91-0.99		
Maternal Mon 1998			0.93*	0.88-0.97	0.93*	0.88-0.98	0.94*	0.89-1.00
Paternal Mon 1998			0.94*	0.90-0.97	0.97	0.93-1.10	0.97	0.93-1.02
Maternal Mon 1999							0.97	0.92-1.03
Paternal Mon 1999							0.95*	0.90-0.99
R^2	0.05		0.07		0.08		0.08	
X^2 ,change in R^2	41.50*		60.95*		23.19*		12.84*	

Note. N = 1370 in 1998 and 1315 in 1999. Mon = Monitoring.
[a] Male = 1.
*$p < .05$.

Table 18.

Summary of Hierarchical Logistic Regression Analysis for Monitoring Variables Predicting Marijuana Initiation (with and without Monitoring at Prior Wave)

	Model 1				Model 2			
	Wave 2		Wave 3		Wave 2		Wave 3	
Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	1.19	0.87-1.63	1.12	0.85-1.48	1.18	0.86-1.62	1.11	0.84-1.46
Sex[a]	1.20	0.88-1.65	1.25	0.95-1.65	1.15	0.84-1.58	1.24	0.94-1.63
Maternal Mon 1997	0.91*	0.86-0.97			0.95	0.89-1.02		
Paternal Mon 1997	0.94*	0.89-0.99			0.95	0.90-1.01		
Maternal Mon 1998			0.90*	0.85-0.95	0.89*	0.83-0.95	0.92*	0.87-0.99
Paternal Mon 1998			0.94*	0.90-0.98	0.99	0.93-1.05	0.93*	0.88-0.99
Maternal Mon 1999							0.95	0.89-1.01
Paternal Mon 1999							1.02	0.96-1.08
R^2	0.06		0.08		0.08		0.08	
X^2 ,change in R^2	40.23*		62.51*		21.43*		2.99	

Note. N = 1369 in 1998 and 1315 in 1999. Mon = Monitoring.
[a] Male = 1.
*$p < .05$.

In univariate models controlling for previous monitoring, both maternal (adjusted ORs: .81 to .85) and paternal (adjusted ORs: .82 to .88) monitoring at Waves 1 and 2, but not 3, were predictive of marijuana initiation (see Tables 22 and 24). In the multivariate model, maternal monitoring alone was a significant concurrent predictor of marijuana

initiation at Wave 2, controlling for maternal and paternal monitoring at the previous wave (adjusted OR = 0.68), similar to the model predicting alcohol initiation (see Table 18). There were no significant concurrent relations between maternal or paternal monitoring and marijuana initiation at Wave 3 controlling for previous monitoring.

Relationship quality. In univariate models predicting alcohol initiation, change in both maternal (adjusted ORs: .87 to .94) and paternal (adjusted ORs: .82 to .90) relationship quality were significant predictors at all three waves. In univariate models predicting marijuana initiation, change in maternal relationship (adjusted ORs: .81 to .92) were predictive at all three waves; and changes in paternal relationship (adjusted ORs: .80 and .90) were predictive at Waves 1 and 2. These univariate models are summarized in Tables 25-28. Including both maternal and paternal relationship quality in a multivariate model, controlling for previous levels of each, paternal relationship quality alone was a significant concurrent predictor of alcohol initiation at Wave 2 (adjusted OR = 0.82); whereas maternal relationship quality was a significant predictor at Wave 3 (adjusted OR = 0.76). In the prediction of marijuana initiation, controlling for previous levels of the predictor variables, maternal relationship quality was the sole significant concurrent predictor at Waves 2 and 3 (adjusted OR = 0.78 at each wave).

All parenting variables. Controlling for the previous values of all four parenting variables (maternal and paternal monitoring and relationship quality), only maternal monitoring remained uniquely predictive of concurrent alcohol initiation at Wave 2 (adjusted OR = 0.83), and only maternal relationship quality remained significant at Wave 3 (adjusted OR = 0.83). This model predicted relatively little of the variance in alcohol initiation at either wave. R^2 values ranged from 0.09-0.10, indicating a small to medium effect (Cohen's

(1992) guidelines suggest R^2 = .02 is a small effect, .13 is a medium effect, and .26 is a large effect).

Table 19.

Summary of Hierarchical Logistic Regression Analysis for Parenting Relationship Variables Predicting Alcohol Initiation (with and without Relationship at Prior Wave)

	Model 1				Model 2			
	Wave 2		Wave 3		Wave 2		Wave 3	
Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	1.44*	1.15-1.81	1.24	0.99-1.59	1.45*	1.15-1.82	1.25	1.00-1.56
Sex[a]	1.18	0.99-1.49	1.09	0.87-1.36	1.21	0.96-1.51	1.11	0.88-1.39
Maternal Rel 1997	0.95*	0.93-0.98			0.97*	0.93-0.99		
Paternal Rel 1997	0.94*	0.92-0.97			0.96*	0.93-0.99		
Maternal Rel 1998			0.96*	0.94-0.99	0.98	0.95-1.00	1.00	0.96-1.00
Paternal Rel 1998			0.95*	0.93-0.97	0.97*	0.94-0.99	0.96*	0.93-0.99
Maternal Rel 1999							0.94*	0.91-0.98
Paternal Rel 1999							0.99	0.96-1.00
R^2	0.07		0.05		0.09		0.07	
X^2 ,change in R^2	62.10*		47.81*		15.11*		15.34*	

Note. N = 1372 in 1998 and 1317 in 1999. Rel = Relationship.
[a] Male = 1.
*p < .05.

In the model predicting marijuana initiation, when all four parenting variables were entered together (model not shown), only maternal monitoring and paternal relationship quality were unique predictors at Waves 1 and 2. At Wave 3, maternal and paternal relationship quality and maternal monitoring were all unique concurrent predictors. Controlling for previous levels of all four parenting variables, only maternal monitoring

remained a significant concurrent predictor at Wave 2 (adjusted OR = 0.74), whereas no parenting variables were significant at Wave 3. The R^2 value for these models was 0.10 at each wave.

Table 20.

Summary of Hierarchical Logistic Regression Analysis for Parenting Relationship Variables Predicting Marijuana Initiation (with and without Relationship at Prior Wave)

	Model 1				Model 2			
	Wave 2		Wave 3		Wave 2		Wave 3	
Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	1.19	0.87-1.63	1.13	0.86-1.48	1.18	0.86-1.63	1.13	0.86-1.49
Sex[a]	1.29	0.94-1.77	1.34*	1.02-1.76	1.31	0.95-1.79	1.36*	1.13-1.79
Maternal Rel 1997	0.95*	0.91-0.98			0.97	0.93-1.00		
Paternal Rel 1997	0.94*	0.91-0.97			0.95*	0.91-0.99		
Maternal Rel 1998			0.95*	0.92-0.98	0.95*	0.91-0.99	0.98	0.94-1.00
Paternal Rel 1998			0.95*	0.92-0.97	0.98	0.95-1.00	0.95*	0.91-0.98
Maternal Rel 1999							0.95*	0.91-0.99
Paternal Rel 1999							1.00	0.97-1.00
R^2	0.07		0.07		0.08		0.08	
X^2 ,change in R^2	49.03*		53.15*		12.12*		7.87*	

Note. N = 1371 in 1998 and 1317 in 1999. Rel = Relationship.
[a] Male = 1.
*$p < .05$.

Race by Parenting Effects on Concurrent Initiation

Race moderated analyses indicated that, in general, the parenting variables studied had similar relations with alcohol and marijuana initiation for Caucasian and African American youth. Controlling for previous levels of parenting, only one significant Race by

Parenting interaction was found in the prediction of both alcohol initiation from both maternal and paternal parenting. Specifically, at Wave 3, race moderated the impact of maternal relationship quality on alcohol initiation (Wald test = 4.63, $p<.05$), such that poor quality maternal relationship was more highly associated with alcohol initiation for Caucasian than African American youth (adjusted ORs = 0.89, and 0.98, respectively). No significant parenting by race interactions were found in models predicting marijuana initiation for maternal or paternal parenting indicators. These analyses are summarized in Tables 21-28.

Table 21.

Alcohol Initiation as Predicted by Maternal Monitoring and Race Interactions

	Model 1				Model 2				Model 3			
	Wave 2		Wave 3		Wave 2		Wave 3		Wave 2		Wave 3	
Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	1.51*	1.25-1.81	1.27*	1.06-1.54	1.50*	1.23-1.80	1.26*	1.05-1.53	1.50*	1.24-1.80	1.23*	1.04-1.52
Sex[a]	1.81	0.84-1.21	0.92	0.76-1.10	0.98	0.81-1.16	0.91	0.75-1.10	0.96	0.80-1.15	0.91	0.75-1.09
Race[b]	1.76*	1.43-2.17	1.99*	1.61-2.45	1.78*	1.44-2.20	1.98*	1.59-2.43	1.75*	1.42-2.16	1.98*	1.60-2.44
Maternal Mon 1997	0.92*	0.89-0.94			0.95*	0.92-0.98			0.95*	0.92-0.98		
Maternal Mon 1998			0.89*	0.86-0.92	0.91*	0.88-0.94	0.92*	0.88-0.95	0.95*	0.90-1.00	0.92*	0.88-0.95
Maternal Mon 1999							0.95*	0.92-0.99			0.99	0.93-1.04
Maternal Mon x Race[c]									0.94	0.88-1.00	0.95	0.89-1.01
R^2	0.05		0.07		0.07		0.07		0.08		0.08	
X^2 ,change in R^2	35.06*		57.89*		34.64*		7.28		3.39		2.74	

Note. N = 2005 in 1998, 1914 in 1999. Mon = Monitoring.
[a] Male = 1. [b] Caucasian = 1. [c] Interactions formed with monitoring and initiation measured at same wave.
* p <.05

Table 22.

Alcohol Initiation as Predicted by Paternal Monitoring and Race Interactions

	Model 1				Model 2				Model 3			
	Wave 2		Wave 3		Wave 2		Wave 3		Wave 2		Wave 3	
Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	1.43*	1.15-1.78	1.24	0.99-1.54	1.44*	1.16-1.79	1.23	0.99-1.54	1.43*	1.15-1.78	1.23	0.98-1.53
Sex[a]	1.20	0.97-1.49	1.07	0.86-1.33	1.21	0.97-1.50	1.07	0.86-1.34	1.20	0.96-1.49	1.07	0.86-1.33
Race[b]	1.89*	1.41-2.52	2.17*	1.63-2.89	1.92*	1.44-2.56	2.22*	1.66-2.96	1.86*	1.39-2.48	2.18*	1.63-2.92
Paternal Mon 1997	0.91*	0.88-0.94			0.94*	0.91-0.97			0.94*	0.91-0.97		
Paternal Mon 1998			0.90*	0.87-0.92	0.94*	0.91-0.97	0.94*	0.90-0.97	0.97	0.91-1.04	0.94*	0.90-0.97
Paternal Mon 1999							0.93*	0.90-0.97			0.95	0.89-1.02
Paternal Mon x Race [c]									0.96	0.89-1.03	0.98	0.91-1.05
R^2	0.07		0.08		0.08		0.09		0.08		0.09	
X^2 ,change in R^2	44.80*		59.64*		13.60*		13.43*		1.23		0.44	

Note. N = 1449 in 1998, 1391 in 1999. Mon = Monitoring.
[a] Male = 1. [b] Caucasian = 1. [c] Interactions formed with monitoring and initiation measured at same wave.
* p <.05

Table 23.

Marijuana Initiation as Predicted by Maternal Monitoring and Race Interactions

	Model 1				Model 2				Model 3			
	Wave 2		Wave 3		Wave 2		Wave 3		Wave 2		Wave 3	
Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	1.32*	1.03-1.69	1.21	0.97-1.50	1.29	1.00-1.66	1.20	0.96-1.49	1.29	1.00-1.66	1.20	0.96-1.50
Sex[a]	1.01	0.79-1.28	1.00	0.81-1.24	0.95	0.75-1.22	1.00	0.80-1.24	0.95	0.74-1.21	1.00	0.80-1.24
Race[b]	1.83*	1.36-2.46	1.71*	1.32-2.22	1.83*	1.36-2.47	1.70	1.31-2.20	1.72	1.26-2.34	1.71	1.31-2.23
Maternal Mon 1997	0.86*	0.83-0.90			0.91*	0.87-0.95			0.91	0.87-0.95		
Maternal Mon 1998			0.86*	0.83-0.89	0.89*	0.86-0.93	0.88	0.84-0.92	0.93	0.86-1.00	0.88	0.84-0.92
Maternal Mon 1999							0.97	0.93-1.00			0.96	0.90-1.02
Maternal Mon x Race[c]									0.94	0.87-1.03	1.10	0.94-1.09
R^2	0.06		0.07		0.09		0.07		0.09		0.07	
X^2 ,change in R^2	56.63*		75.09*		31.43*		2.70		1.72		0.10	

Note. N = 2002 in 1998, 1911 in 1999. Mon = Monitoring.
[a] Male = 1. [b] Caucasian = 1. [c] Interactions formed with monitoring and initiation measured at same wave.
* p <.05

Table 24.

Marijuana Initiation as Predicted by Paternal Monitoring and Race Interactions

	Model 1				Model2				Model 3			
	Wave 2		Wave 3		Wave 2		Wave 3		Wave 2		Wave 3	
Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	1.18	0.87-1.59	1.16	0.89-1.51	1.17	0.86-1.59	1.16	0.89-1.51	1.33	0.88-1.61	1.16	0.90-1.51
Sex[a]	1.33	0.98-1.80	1.33*	1.02-1.72	1.33	0.98-1.79	1.33	1.02-1.72	1.18	0.99-1.81	1.33*	1.03-1.73
Race[b]	2.03*	1.30-3.06	1.64*	1.14-2.36	2.04*	1.31-3.18	1.65	1.15-2.36	2.41*	1.41-4.11	1.72*	1.17-2.54
Paternal Mon 1997	0.89*	0.86-0.93			0.93*	0.89-0.97			0.93*	0.87-0.97		
Paternal Mon 1998			0.88*	0.85-0.91	0.93*	0.89-0.97	0.89*	0.85-0.93	0.87*	0.77-0.97	0.86*	0.85-0.93
Paternal Mon 1999							1.00	0.95-1.04	1.08	0.96-1.21	0.97	0.89-1.06
Paternal Mon x Race[c]											1.03	0.94-1.13
R^2	0.06		0.07		0.07		0.07		0.07		0.07	
X^2 ,change in R^2	34.60*		55.21*		9.88*		0.04		1.74		0.52	

Note. N = 1447 in 1998, 1389 in 1999. Mon = Monitoring.
[a] Male = 1. [b] Caucasian = 1. [c] Interactions formed with monitoring and initiation measured at same wave.
* p <.05

Table 25.

Alcohol Initiation as Predicted by Maternal Relationship and Race Interactions

	Model 1				Model 2				Model 3			
	Wave 2		Wave 3		Wave 2		Wave 3		Wave 2		Wave 3	
Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	1.48*	1.23-1.79	1.26*	1.05-1.52	1.47*	1.23-1.77	1.28*	1.06-1.54	1.47	1.22-1.76	1.27*	1.05-1.54
Sex[a]	1.03	0.86-1.23	0.97	0.81-1.17	1.03	0.86-1.23	0.98	0.81-1.18	1.02	0.85-1.23	0.98	0.81-1.19
Race[b]	1.69*	1.37-2.08	1.89*	1.54-2.32	1.68*	1.36-2.07	1.90*	1.55-2.34	1.67	1.36-2.06	1.91*	1.55-2.34
Maternal Rel 1997	0.93*	0.91-0.95			0.94*	0.92-0.97			0.94*	0.92-0.97		
Maternal Rel 1998			0.94*	0.92-0.96	0.97*	0.95-0.99	0.96*	0.94-0.99	1.00	0.96-1.04	0.97*	0.94-0.99
Maternal Rel 1999							0.96*	0.94-0.98			0.99	0.95-1.00
Maternal Rel x Race[c]									0.96	0.92-1.00	0.95*	0.91-0.99
R^2	0.06		0.06		0.07		0.06		0.07		0.07	
X^2 ,change in R^2	51.35*		38.58*		8.67*		11.08*		3.21		4.61*	

Note. N = 2005 in 1998, 1915 in 1999. Rel = Relationship.

[a] Male = 1. [b] Caucasian = 1. [c] Interactions formed with relationship and initiation measured at same wave.

* p <.05

Table 26.

Alcohol Initiation as Predicted by Paternal Relationship and Race Interactions

	Model 1				Model 2				Model 3			
	Wave 2		Wave 3		Wave 2		Wave 3		Wave 2		Wave 3	
Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	1.45*	1.17-1.80	1.24	1.00-1.55	1.46*	1.18-1.82	1.26*	1.01-1.57	1.46*	1.17-1.82	1.26*	1.01-1.57
Sex[a]	1.24	1.00-1.53	1.09	0.88-1.36	1.27*	1.02-1.57	1.11	0.89-1.39	1.27*	1.02-1.58	1.11	0.89-1.39
Race[b]	1.81*	1.36-2.42	2.18*	1.64-2.90	1.92*	1.43-2.56	2.24*	1.68-3.00	1.88*	1.40-2.53	2.19	1.64-2.92
Paternal Rel 1997	0.92*	0.90-0.94	0.93		0.95*	0.93-0.98			0.96*	0.93-0.98		
Paternal Rel 1998				0.91-0.95	0.95*	0.93-0.97	0.96*	0.93-0.98	1.00	0.92-1.00	0.96*	0.93-0.98
Paternal Rel 1999							0.96*	0.93-0.99			0.98	0.93-1.00
Paternal Rel x Race[c]									0.99	0.94-1.00	0.97	0.93-1.00
R^2	0.07		0.07		0.09		0.08		0.09		0.08	
X^2 ,change in R^2	53.74*		53.18*		17.76*		8.50*		0.37		1.24	

Note. N = 1451 in 1998, 1393 in 1999. Rel = Relationship.
[a] Male = 1. [b] Caucasian = 1. [c] Interactions formed with relationship and initiation measured at same wave.
* p <.05

Table 27.

Marijuana Initiation as Predicted by Maternal Relationship and Race Interactions

	Model 1				Model 2				Model 3			
	Wave 2		Wave 3		Wave 2		Wave 3		Wave 2		Wave 3	
Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	1.29	1.00-1.65	1.20	0.96-1.50	1.27	0.99-1.63	1.21	0.97-1.51	1.27	0.99-1.64	1.21	0.97-1.51
Sex[a]	1.04	0.82-1.33	1.08	0.87-1.34	1.05	0.82-1.34	1.10	0.86-1.36	1.05	0.83-1.35	1.10	0.87-1.36
Race[b]	1.68*	1.25-2.26	1.58*	1.22-2.05	1.65*	1.23-2.22	1.59*	1.23-2.06	1.69*	1.24-2.29	1.58*	1.22-2.05
Maternal Rel 1997	0.90*	0.87-0.92			0.93*	0.90-0.96			0.93*	0.90-0.96		
Maternal Rel 1998			0.92*	0.90-0.94	0.95*	0.92-0.97	0.94*	0.91-0.97	0.93*	0.88-0.99	0.94*	0.91-0.97
Maternal Rel 1999							0.96*	0.94-0.99			0.97	0.92-1.01
Maternal Rel x Race[c]									1.00	0.96-1.07	0.99	0.94-1.04
R^2	0.07		0.06		0.08		0.06		0.08		0.06	
X^2 ,change in R^2	63.89*		58.03*		15.70*		7.79*		0.29		0.08	

Note. N = 2005 in 1998, 1912 in 1999. Rel = Relationship.
[a] Male = 1. [b] Caucasian = 1. [c] Interactions formed with relationship and initiation measured at same wave.
* p <.05

Table 28.

Marijuana Initiation as Predicted by Paternal Relationship and Race Interactions

	Model 1				Model 2				Model 3			
	Wave 2		Wave 3		Wave 2		Wave 3		Wave 2		Wave 3	
Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	1.19	0.88-1.61	1.16	0.90-1.51	1.20	0.88-1.62	1.17	0.90-1.52	1.20	0.88-1.63	1.17	0.90-1.52
Sex[a]	1.39*	1.03-1.89	1.36*	1.05-1.77	1.42*	1.05-1.93	1.38*	1.06-1.79	1.41*	1.04-1.92	1.38*	1.06-1.79
Race[b]	1.92*	1.24-2.99	1.68*	1.17-2.42	2.01*	1.29-3.13	1.70*	1.18-2.45	2.19*	1.32-3.62	1.74*	1.17-2.57
Paternal Rel 1997	0.91*	0.87-0.94			0.94*	0.91-0.97			0.94*	0.91-0.97		
Paternal Rel 1998			0.92*	0.90-0.94	0.96*	0.93-0.99	0.94*	0.90-0.97	0.94*	0.88-0.99	0.94*	0.90-0.97
Paternal Rel 1999							0.98	0.95-1.01			0.97	0.92-1.02
Paternal Rel x Race[c]									1.02	0.96-1.10	1.00	0.95-1.06
R^2	0.07		0.07		0.08		0.07		0.08		0.07	
X^2 ,change in R^2	44.58*		52.72*		7.81*		1.60		0.61		0.09	

Note. N = 1449 in 1998, 1391 in 1999. Rel = Relationship.
[a] Male = 1. [b] Caucasian = 1. [c] Interactions formed with relationship and initiation measured at same wave.
* p <.05

The Effects of Income and Residential Stability on Substance Initiation

Income was not concurrently associated with alcohol or marijuana initiation at any wave, controlling for income at the prior wave. The number of moves occurring between Waves 1 and 2 was significantly related to the likelihood of alcohol (OR = 1.21) and marijuana initiation (OR = 1.30) at Wave 2; residential moves between Waves 2 and 3 were not related to alcohol initiation at Wave 3, but were related to marijuana initiation (OR = 1.28), controlling for previous residential mobility. There were no interactive effects between income or residential mobility and race in the prediction of alcohol or marijuana initiation at any wave (see Table 29, which summarizes the final block of separate hierarchical regressions controlling for income and residential mobility at the previous wave, with the interaction term added at the final step).

Multivariate Models: All Mediators

When all parenting variables, household income, and residential mobility were entered into a model simultaneously (not shown), household income and maternal relationship quality were uniquely related to concurrent alcohol initiation at Wave 1. At Wave 2, maternal monitoring and paternal relationship quality were the only unique concurrent predictors. At Wave 3, paternal monitoring and maternal relationship quality were unique concurrent predictors. Controlling for the influence of each mediator at the previous wave, maternal monitoring was the only significant concurrent predictor of alcohol initiation at Wave 2 (adjusted OR = 0.69); whereas paternal monitoring (adjusted OR = 0.73), maternal relationship (adjusted OR = 0.78), and residential mobility (OR = 0.66) were

significant concurrent predictors at Wave 3. R^2 values for these models ranged from 0.11 to 0.14.

Table 29.

Alcohol and Marijuana Initiation as Predicted by Concurrent Levels of Hypothesized Income and Residential Mediators and Race Interactions – Univariate Models

	Wave 1		Wave 2		Wave 3	
Variable	OR	95% CI	OR	95% CI	OR	95% CI
			Alcohol Initiation			
Income	1.0	1.0-1.0	1.00	1.00-1.00	1.00	1.00-1.00
Race[a]	1.52**	1.11-2.08	1.70***	1.27-2.27	1.67**	1.20-2.31
Income x Race[b]	1.0	1.0-1.0	1.00	1.00-1.00	1.00	1.00-1.00
Res Mob			1.35*	1.07-1.71	1.26	0.94-1.70
Race			1.76***	1.44-2.16	1.97***	1.61-2.40
Res Mob x Race			0.89	0.67-1.18	0.85	.59-1.22
			Marijuana Initiation			
Income	1.0	1.0-1.0	1.00	1.00-1.00	1.00	1.00-1.00
Race	2.09*	1.02-4.7	1.98**	1.27-3.08	2.01**	1.28-3.17
Income x Race	1.0	1.0-1.0	1.00	1.00-1.00	1.00	1.00-1.00
Res Mob			1.31	0.96-1.78	1.56**	1.12-2.17
Race			1.79***	1.34-2.38	1.75***	1.37-2.42
Res Mob x Race			1.03	0.72-1.46	0.88	0.59-1.32

Note. Ns ranged from 1262 to 1885 for income and 1967 to 2026 for residential mobility. Res Mob = Residential Mobility.
[a] Caucasian = 1. [b] All interactions formed with predictor and initiation measured at same wave.
*p<.05 ** p<.01 ***p<.001

At Wave 1, only paternal relationship quality was uniquely related to marijuana initiation when all mediators were entered together (adjusted OR = .72). At Wave 2, maternal monitoring was the only unique concurrent predictor (adjusted OR = .74). At Wave 3, no unique concurrent predictors of marijuana use emerged. Controlling for the influence

of each mediator at the previous wave, there were no significant concurrent predictors of marijuana initiation at Waves 2 or 3 ($R^2 = 0.14$ at each wave).

Race by all mediators. No significant interactions emerged between race and any of the hypothesized mediator variables at any wave in the prediction of alcohol or marijuana initiation when all were entered into the same model.

The Mediating Effects of Parenting, Income, and Residential Mobility on the Relation Between Family Structure Transitions and Substance Initiation: Logistic Regression Models

To explore the extent to which parenting, income, and residential mobility mediated the relation between family structure transitions and substance initiation, a series of hierarchical logistic regression analyses were run for alcohol and marijuana initiation. These models also provided an estimate of mediated effects, in that estimates of the influence of transition on initiation that were reduced to nonsignificance with the addition of the hypothesized mediator variables to the model may be considered to be mediated in their effects according to the Baron & Kenny (1986) model. Tables 30 through 35 summarize those results, presenting the odds ratios associated with various transitions before and after the addition of the hypothesized mediators to the model. Again, both univariate and multivariate combinations of the hypothesized mediators were modeled, although for these analyses, the following models were tested: (1) all parenting variables, (2) residential mobility, and (3) income. Results are presented for each transition category within each mediator: the influence of parenting mediators on transition effects is presented first, followed by income and residential mobility.

Due the limited number of youth with data available on each mediator variable who had experienced certain transitions, the effects of several groups within the "single-parent" transition and "cohabiting" transition categories could not be estimated. Although Model 1 does not include any mediators, sample size and results for Model 1 differ among tables as each analysis was run on the subset of youth that had full data for the transition category and mediator being studied in Model 2. For both alcohol and marijuana use, none of the cohabiting transitions were significant with or without mediators in the model. Thus, cohabiting results are summarized in the subsequent tables but will not be discussed.

The Mediating Effect of Parenting on the Relation between Family Structure Transitions and Initiation of Alcohol and Marijuana Use

Alcohol initiation. The first model predicted alcohol initiation from transitions within the "two-parent family" category at Waves 2 and 3 with and without concurrently measured parenting variables in the model. This model indicated that the relation between belonging to the "never two-parent" group and alcohol initiation (compared to those continuously living in two-parent families) was reduced to non-significance (the OR was reduced from 1.5 to 1.22 at Wave 2, and 1.32 to 1.15 at Wave 3) after all four parenting variables were entered, at both Waves 2 and 3 (see Table 30).

These models were also run using the variables constructed to examine transitions from single-parent families (see Table 30). At Wave 2, those who were not in a single-parent family at Wave 1 were less likely to have initiated alcohol compared to those in the continuously single group. Due to sample size restrictions, SPSS could not make comparisons between the reference group and the "single to cohabiting" and "single to

single-extended" groups in the model in which parenting variables were entered in Block 2. In this limited model, membership in the "single to stepfamily" group was associated with a greater likelihood of initiation compared to those in the continuously single group. No transition variables remained significant when parenting variables were added in Block 2, with the OR for "not single at Wave 1" dropping from 1.77 to 1.67, and the OR for "single to step" dropping from 3.09 to 2.48. At this wave, "not single at Wave 2" and "single to stepfamily" – the only remaining estimatable transition groups -- were both non-significant predictors of alcohol initiation at Wave 3 with or without parenting predictors in the model.

Marijuana initiation. The above steps were repeated to test the influence of the addition of the hypothesized mediator variables to the models predicting the initiation of marijuana use at Waves 1 and 2 from family structure transitions between Waves 1 and 2 and Waves 2 and 3. Table 31 summarizes the results of these three models.

Table 30.

Summary of Odds Ratios from Hierarchical Logistic Regression Analyses Predicting Alcohol Initiation from Selected Family Structure Transitions With and Without Parenting Mediators

	Wave 2		Wave 3	
Predictors	Model 1: No meds	Model 2: Parenting	Model 1: No meds	Model 2: Parenting
Transition Type 1: Two-Parent				
Never Two-Parent	1.50**	1.22	1.32*	1.15
Transition from Two-Parent	1.84	1.77	0.85	0.78
Transition to Two-Parent	0.78	0.76	1.06	0.91
Maternal Monitor		0.94**		0.97
Paternal Monitor		0.98		0.95*
Maternal Relationship		0.98		0.96**
Paternal Relationship		0.96**		0.99
Transition Type 2: Single-Parent				
Not Single-Parent at t-1	1.77*	1.67	0.60	0.60
Single to Step	3.09*	2.48	1.10	1.00
Maternal Monitor		0.94**		0.97
Paternal Monitor		0.98		0.95*
Maternal Relationship		0.98		0.96*
Paternal Relationship		0.96***		0.99
Transition Type 3: Cohabiting				
Not Cohabiting at t-1	0.73		0.40	0.45
Cohabiting to Step	0.85			
Maternal Monitor		0.94**		0.96
Paternal Monitor		0.98		0.95*
Maternal Relationship		0.98		0.97**
Paternal Relationship		0.96***		0.99

Note: *N*s ranged from 1377 at Wave 3 to 1460 at Wave 2. Meds = mediators. Blank cells are due to limited data available for that combination of variables at that wave.
*p<.05 **p<.01 ***p <.001

Table 31.

Summary of Odds Ratios from Hierarchical Logistic Regression Analyses Predicting Marijuana Initiation from Selected Family Structure Transitions With and Without Parenting Mediators

	Wave 2		Wave 3	
Predictors	Model 1: No meds	Model 2: Parenting	Model 1: No meds	Model 2: Parenting
Transition Type 1: Two-Parent				
Never Two-Parent	1.57**	1.19	1.85**	1.61**
Transition from Two-Parent	1.42	1.33	1.33	1.28
Transition to Two-Parent	1.05	0.99	2.17	1.89
Maternal Monitor		0.92**		0.93**
Paternal Monitor		0.99		1.00
Maternal Relationship		0.96*		0.97
Paternal Relationship		0.96*		0.97*
Transition Type 2: Single-Parent				
Not Single-Parent at t-1	0.86	0.79	0.85	0.80
Single to Step	1.73	1.32	1.98	1.69
Maternal Monitor		0.92**		0.93*
Paternal Monitor		0.99		1.00
Maternal Relationship		0.96*		0.97
Paternal Relationship		0.96**		0.96*
Transition Type 3: Cohabiting				
Not Cohabiting at t-1	0.71		0.45	0.52
Cohabiting to Step	0.58			
Maternal Monitor		0.92**		0.93**
Paternal Monitor		0.99		1.00
Maternal Relationship		0.96*		0.98
Paternal Relationship		0.96**		0.96**

Note: *N*s ranged from 1376 at Wave 3 to 1459 at Wave 2. Meds = mediators.
*p<.05 **p<.01 ***p <.001

Again, beginning with transitions from two-parent families, at both waves, membership in the "never two-parent" group was significantly associated with an increased chance of marijuana initiation at the next wave when compared to those in continuously two-parent families. This association was reduced to nonsignificance (OR before = 1.57; OR after = 1.19) by the addition of the parenting variables in predicting marijuana initiation at Wave 2;

but was still significant after the addition of the parenting variables in predicting initiation at Wave 3.

For the "single-parent" transition group, belonging to the "not single at Wave t-1" group was a significant predictor compared to membership in the reference group of "continuously single" at both waves. At Waves 2 and 3, it was not possible to estimate the "single to cohabiting" or "single to single extended" groups in the models with all of the parenting variables. Within this reduced model comparing only "not single at Wave t-1" and "single to stepfamily," neither were significant predictors, with or without parenting in the model.

The Mediating Effects of Income and Residential Mobility on the Relation between Family Structure Transitions and Initiation of Alcohol and Marijuana Use

Alcohol initiation. Separate models predicting alcohol initiation at Waves 2 and 3 from transitions within the "two-parent" category were run with household income and residential mobility, respectively, entered into the second block (see Tables 32 and 33). In these models at Wave 2, the "never two-parent" group was significantly different than the reference group in Block 1, and still significant when either household income or residential mobility were introduced in Block 2. The difference in likelihood of alcohol initiation between never living in a two-parent family and consistently doing so remained significant with and without residential mobility in the model at Wave 3; whereas when household income was introduced to the Wave 3 model, the "never two-parent" group became significantly associated with a greater likelihood of alcohol initiation, where in Block 1 it had not been. There was also a significantly greater likelihood of alcohol initiation among those

transitioning out of a two-parent family at Wave 2 (compared to the reference group), with or without income in the model (this group difference was not seen in the residential mobility models).

Table 32.

Summary of Odds Ratios from Hierarchical Logistic Regression Analyses Predicting Alcohol Initiation from Selected Family Structure Transitions With and Without Income as Mediator

	Wave 2		Wave 3	
Predictors	Model 1: No meds	Model 2: Income	Model 1: No meds	Model 2: Income
Transition Type 1: Two-Parent				
Never Two-Parent	1.46**	1.55**	1.19	1.29*
Transition from Two-Parent	2.10*	2.20*	1.49	1.59
Transition to Two-Parent	0.87	0.92	1.21	1.37
Income		1.00		1.0*
Transition Type 2: Single-Parent				
Not Single-Parent at t-1	0.72*	0.70*	0.92	0.87
Single to Step	0.86	0.86	1.63	1.59
Single to Cohabiting	1.53	1.53	0.88	0.85
Single to Single-Ext	0.34	0.34	0.33	0.34
Single to Other	0.62	0.61	0.72	0.72
Income		1.00		1.00
Transition Type 3: Cohabiting				
Not Cohabiting at t-1	0.38	0.38	0.41	0.40
Cohabiting to Step	0.31	0.31	1.01	1.02
Cohabiting to Other	0.30	0.30	0.57	0.58
Income		1.00		1.0

Note: *N*s ranged from 1567 at Wave 3 to 1596 at Wave 2. Meds = mediators.
*p<.05 **p<.01 ***p <.001

For the models in which income and residential mobility (respectively) were added in Block 2 to the model predicting alcohol initiation from transitions within the "single-parent" category, membership in the "not single at Wave 1" group was still significant when either household income or residential mobility were entered. It was possible to compare all transition categories in these models due to the greater number of participants with full data

on the necessary combination of transition and mediator variables. At Wave 3, there were no differences in alcohol initiation across different single-parent transitions with or without income or residential mobility included in the model.

Table 33.

Summary of Odds Ratios from Hierarchical Logistic Regression Analyses Predicting Alcohol Initiation from Selected Family Structure Transitions With and Without Residential Mobility as Mediator

	Wave 2		Wave 3	
Predictors	Model 1: No meds	Model 2: Mobility	Model 1: No meds	Model 2: Mobility
Transition Type 1: Two-Parent				
Never Two-Parent	1.46***	1.40***	1.32**	1.32***
Transition from Two-Parent	1.57	1.46	1.50	1.48
Transition to Two-Parent	1.09	1.06	1.10	1.09
Residential Mobility		1.12		1.02
Transition Type 2: Single-Parent				
Not Single-Parent at t-1	0.79*	0.80*	0.83	0.84
Single to Step	1.14	1.06	1.51	1.48
Single to Cohabiting	1.41	1.32	0.75	0.74
Single to Single-Ext	0.64	0.58	0.43	0.42
Single to Other	0.83	0.75	0.74	0.70
Residential Mobility		1.19*		1.08
Transition Type 3:Cohabiting				
Not Cohabiting at t-1	0.31	0.29	0.78	0.77
Cohabiting to Step	0.23	0.18	1.53	1.48
Cohabiting to Other	0.41	0.35	1.52	1.46
Residential Mobility		1.21**		1.09

Note: *N*s ranged from 1951 at Wave 3 to 2029 at Wave 2. Meds = mediators.
*p<.05 **p<.01 ***p <.001

Marijuana initiation. In this model, at Wave 2, membership in the "never two-parent" group and the "transition from two-parent" groups was still significantly associated with marijuana initiation when household income was introduced. In the model predicting marijuana initiation at Wave 3, not only was the "never two-parent" variable a significant predictor, so too was transitioning from any other group to a two-parent family. These

associations remained significant after the addition of household income to the model. The finding that transitioning to a two-parent family was significantly associated with marijuana initiation in this model was contrary to hypothesis and should be interpreted with caution, in that it did not arise in other analyses, most persuasively those using the largest proportion of the full sample (see Table 13).

Table 34.

Summary of Odds Ratios from Hierarchical Logistic Regression Analyses Predicting Marijuana Initiation from Selected Family Structure Transitions With and Without Income as Mediator

	Wave 2		Wave 3	
Predictors	Model 1: No meds	Model 2: Income	Model 1: No meds	Model 2: Income
Transition Type 1: Two-Parent				
Never Two-Parent	1.67***	1.53**	1.60***	1.63***
Transition from Two-Parent	2.56**	2.40*	1.86	1.91
Transition to Two-Parent	0.75	0.69	3.94*	4.14*
Income		1.00		1.00
Transition Type 2: Single-Parent				
Not Single-Parent at t-1	0.60***	0.67**	0.74*	0.74*
Single to Step	0.55	0.56	2.29	2.29
Single to Cohabiting	0.23	0.24	0.96	0.97
Single to Single-Ext	0.00	0.00	0.22	0.22
Single to Other	0.93	0.97	1.57	1.57
Income		1.00		1.00
Transition Type 3:Cohabiting				
Not Cohabiting at t-1			0.92	0.93
Cohabiting to Step			1.02	1.02
Cohabiting to Other			2.23	2.21
Income		1.00**		1.00

Note: *N*s ranged from 1563 at Wave 3 to 1594 at Wave 2. Meds = mediators.
*p<.05 **p<.01 ***p <.001

Membership in the "never two-parent" group was still significantly associated with marijuana initiation when residential mobility was introduced to the model at Wave 2. In the model predicting Wave 3 initiation, membership in both the "never two-parent" and

"transition from two-parent" groups were significant predictors. Membership in the latter group became nonsignificant with this addition of residential mobility to the model (OR before = 1.48; OR after = 1.32).

At Waves 2 and 3, membership in the "not single at Wave t-1" group was a significant predictor with or without household income or residential mobility in the model. With all mediators in the model, "not single at Wave t-1" and "single to stepfamily" were the only groups that can be compared, and they were not significant predictors of initiation with or without the mediators in the model.

Table 35.

Summary of Odds Ratios from Hierarchical Logistic Regression Analyses Predicting Marijuana Initiation from Selected Family Structure Transitions With and Without Residential Mobility as Mediator

	Wave 2		Wave 3	
Predictors	Model 1: No meds	Model 2: Mobility	Model 1: No meds	Model 2: Mobility
Transition Type 1: Two-Parent				
Never Two-Parent	1.74**	1.64***	1.84***	1.74***
Transition from Two-Parent	1.79	1.59	1.85	1.65
Transition to Two-Parent	1.35	1.29	2.42	2.31
Residential Mobility		1.19*		1.22*
Transition Type 2: Single-Parent				
Not Single-Parent at t-1	0.69*	0.70*	0.71**	0.73*
Single to Step	1.21	1.10	1.49	1.40
Single to Cohabiting	0.61	0.55	1.54	1.48
Single to Single-Ext	0.53	0.46	0.15	0.14*
Single to Other	1.28	1.11	1.02	0.87
Residential Mobility		1.27*		1.34**
Transition Type 3: Cohabiting				
Not Cohabiting at t-1			2.27	2.11
Cohabiting to Step			2.89	2.50
Cohabiting to Other			8.53	7.34
Residential Mobility		1.29*		1.36***

Note: *N*s ranged from 1947 at Wave 3 to 2026 at Wave 2. Meds = mediators.
*p<.05 **p<.01 ***p <.001

Analysis of Mediation Effects: Product of Coefficients Method

This section reviews the results of the mediation analyses suggested for use with binary outcomes by MacKinnon (2008). These analyses were run for both the full sample and for Caucasian and African American youth separately.

First, the mediated effect was calculated for each hypothesized mediator variable that was shown in earlier analyses to be both (a) significantly predicted by family structure transitions, and (b) was in turn a significant concurrent predictor of substance initiation. MacKinnon (2008) argued that it is not always necessary for the independent variable (i.e., family structure transition) to significantly predict the dependent variable (alcohol or marijuana initiation) for significant mediational effects to exist, so that was not taken as a criterion for these analyses. The tables below present the mediated effect (ab) and standard error of the mediated effect for each variable (see MacKinnon, 2008, pp. 107-108 for the formula used to calculate the standard error of the mediated effect). The significance of the mediated effect was tested by dividing the estimate by its standard error and comparing the resulting value to the normal distribution – values over 1.96 are considered significant (MacKinnon, 2008). The total mediating effect was calculated by computing the effect of the independent variable on each mediator independently, yielding estimates a_1, a_2, a_3, etc (presented in Tables 14 to 16); then computing the effect of the independent variable and the mediators together in one equation, yielding estimates b_1, b_2, b_3, etc (presented in Tables 30 to 35). Each a and b estimate is multiplied, and the products are added to obtain the total

mediated effect: $a_1 b_1 + a_2 b_2 + a_3 b_3$, etc. In cases where multiple mediators met criteria for analysis of mediation, the total effects are also presented in Tables 36 and 37.

Full Sample

Tables 36 and 37 present mediated effects using the full sample of youth for those hypothesized mediators that the previously described analyses indicated were both significantly predicted by family structure transitions as well as significant concurrent predictors of substance initiation. In the case of alcohol initiation, the mediators that met these criteria varied by wave and by which transition group was being studied, but included paternal monitoring, maternal and paternal relationship, and residential mobility. In the case of marijuana initiation, income also fit these criteria, in addition to the mediators that met criteria in predicting alcohol initiation.

The results of the mediation analysis indicated that paternal monitoring and maternal and paternal relationship quality were significant mediators of the influence of never living in a two parent family compared to continuously living in a two parent family on alcohol initiation. Residential mobility was also a significant mediator of the relation between transitions from single to stepfamilies and other families, and cohabiting to step and other families. The estimated total mediated effect, 0.10, may underrepresent the total mediated effect due to suppression effects that occur as the negative relations between parental variables and alcohol initiation are opposed by the positive relation between residential mobility and alcohol initiation.

Table 36.

Mediational Effects of Family Structure Transitions on Alcohol Initiation: Product of Coefficients

		Wave 2		Wave 3	
IV	Mediator	(ab)	SE	(ab)	SE
	Transition Type 1: Two-Parent				
Never two-parent	Paternal monitoring	-0.04*	0.02	N/a	N/a
	Maternal relationship	-0.04*	0.01	-0.02	0.01
	Paternal relationship	N/a	N/a	-0.01*	0.02
	Residential mobility	0.04	0.02	N/a	N/a
	Total mediated effect	-0.10		-0.06	
From two-parent	Residential mobility	0.07	0.04	0.01	0.05
	Transition Type 2: Single-Parent				
Not single at t-1	Residential mobility	0.01	0.01	0.01	0.01
Single to step	Residential mobility	0.07*	0.03	N/a	N/a
Single to cohab	Residential mobility	0.06	0.04	0.01	0.02
Single to SE	Residential mobility	N/a	N/a	0.02	0.03
Single to other	Residential mobility	0.10*	0.04	0.04	0.05
	Transition Type 3: Cohabiting				
Cohab to step	Residential mobility	0.21*	0.10	N/a	N/a
Cohab to other	Residential mobility	0.17*	0.08*	0.22*	0.10

Note. "n/a" indicates that mediation was not tested because the combination of variables did not meet initial criteria for mediation.
*p<.05.

Maternal and paternal monitoring and relationship quality also partially mediated the relation between belonging to the "never two-parent" group and marijuana initiation, as did income at Wave 3. Residential mobility partially mediated the relation between transitioning from a two-parent family to another family type and initiating marijuana at Wave 2, compared to those consistently in a two-parent family. Residential mobility was also a significant mediator of several single-parent transitions, mediating the relation between not

being in a single parent family at Wave 2 (compared to those continuously in single-parent families from Waves 2 to 3) on marijuana initiation, as well as the relations between moving from a single to a stepfamily from Waves 1 to 2; and moving from a single parent to "other" family type between both waves. Residential mobility also served as a significant mediator of the relation between cohabiting family transitions and marijuana initiation at Wave 2.

Table 37.

Mediational Effects of Family Structure Transitions on Marijuana Initiation: Product of Coefficients

		Wave 2		Wave 3	
IV	Mediator	(ab)	SE	(ab)	SE
	Transition Type 1: Two-Parent				
Never two-parent	Paternal monitoring	-0.05*	0.02	N/a	N/a
	Maternal relationship	-0.04*	0.02	-0.02	0.01
	Paternal relationship	N/a	N/a	-0.08*	0.02
	Income	-0.02	0.01	-0.04*	0.02
	Residential mobility	0.06*	0.03	N/a	N/a
	Total mediated effect	-0.12		-0.06	
From two-parent	Income	N/a	N/a	-0.11	0.06
	Residential mobility	0.07	0.04	0.04*	0.05
	Total mediated effect			0.17	
To two-parent	Income	-0.05	0.03	N/a	N/a
	Transition Type 2: Single-Parent				
Not single at t-1	Income	-0.02	0.01	0.00	0.01
	Residential mobility	0.02	0.01	0.01*	0.01
	Total mediated effect	0.02		0.03	
Single to step	Residential mobility	0.10*	0.04	N/a	N/a
Single to cohab	Residential mobility	0.08	0.04	0.04	0.04
Single to SE	Residential mobility	N/a	N/a	0.08	0.05
Single to other	Residential mobility	0.13*	0.05	0.16*	0.06
	Transition Type 3: Cohabiting				
Cohab to step	Residential mobility	0.27*	0.12	N/a	N/a
Cohab to other	Residential mobility	0.22*	0.10	0.15	0.08

Note. *p<.05. "N/a" indicates that mediation was not tested because the combination of variables did not meet initial criteria for mediation.

Analysis of Mediation Effects: by Race

The preceding examination of race-moderated effects suggested that (a) the effects of family structure transitions and the hypothesized parenting mediators were sometimes moderated by race in their effects on alcohol initiation, (b) there were no race-moderated effects when marijuana initiation was the dependent variable, (c) income and residential mobility were not moderated by race in their effects on substance initiation, and (d) cohabiting transitions were not moderated by race in their effects on substance initiation. Based on the pattern of race-moderated effects, the following questions were analyzed separately by race in order to explore whether mediation effects might differ for African American and Caucasian youth:

(1) Is the difference in alcohol initiation observed for those from "never two-parent" families compared to those from "consistently two-parent families" mediated differently by the four hypothesized parenting variables for Caucasian youth as compared to African American youth?

(2) Is the difference in alcohol initiation observed for those from "not single at Wave t-1" families compared to those from "consistent single-parent families" mediated differently by the four hypothesized parenting variables for Caucasian youth as compared to African American youth?

To this end, the steps for establishing mediation were repeated for each sub-sample of Caucasian and African-American youth separately. At each wave, the hypothesized mediators were regressed on alcohol initiation for each sample; and a hierarchical regression estimated the influence of the two transition types specified on alcohol initiation with and

without each parenting variable in the model. The specific indirect and total indirect effects for each model were calculated for each racial subsample.

The first analysis by subsample was the prediction of the hypothesized mediators by Transition Types 1 (specifically, "never two-parent" vs. consistently two-parent) and 2 (specifically, "not single at wave t-1" versus consistently single-parent). Those mediators that were not significantly predicted by one of the family structure transition categories did not meet basic criteria for further mediational analyses. These findings are summarized below; the regression coefficients presented in the following tables serve as paths "a" in the mediator model. For Caucasian youth, transition group membership was a significant predictor of all parenting variables at the next wave when comparing "never two-parent" to "consistently two-parent"; and predicted all parenting variables at Wave 2 when comparing "not single at Wave 1" to "consistently single" (see Table 38).

Table 38.

The Prediction of Parenting Quality from Selected Two-Parent and Single-Parent Family Transitions: Caucasian Youth

	Wave 2		Wave 3	
IV/DV	B	SE	B	SE
Transition Type 1: Two-parent at both waves				
Never two-parent				
Maternal Monitoring	-0.76*	0.17	-0.68*	0.18
Paternal Monitoring	-1.24*	0.28	-1.08*	0.27
Maternal Relationship	-1.39*	0.27	-1.24*	0.27
Paternal Relationship	-2.82*	0.40	-2.35*	0.40
Transition Type 2: Single-parent at both waves				
Not single at wave t-1				
Maternal Monitoring	-0.53*	0.24	0.35	0.24
Paternal Monitoring	-1.73*	0.77	-1.23	0.73
Maternal Relationship	-1.63*	0.38	-1.26*	0.39
Paternal Relationship	-2.83*	0.40	-0.02	0.11

Note. Ns range from 1143 to 1456.
* $p<.05$

In contrast, when comparing "never two-parent" to consistently two-parent among African American youth, transition status predicted paternal monitoring and relationship at Wave 2. When comparing "not single at wave t-1" to consistently single-parent family membership, transition status predicted maternal monitoring at Wave 2 and paternal monitoring at Wave 3 for African American youth (see Table 39).

Table 39.

The Prediction of Changes in Parenting Quality from Selected Two-Parent and Single-Parent Family Transitions: African American Youth

	Wave 2		Wave 3	
IV/DV	B	SE	B	SE
Transition Type 1: Two-parent				
Never two-parent				
Maternal Monitor	-0.04	0.31	0.03	0.34
Paternal Monitor	-1.19*	0.52	-0.16	0.55
Maternal Relationship	-0.71	0.43	-0.57	0.50
Paternal Relationship	-1.86*	0.84	-0.66	0.84
Transition Type 2: Single-parent				
Not single at wave t-1				
Maternal Monitor	-0.74*	0.31	-0.46	0.43
Paternal Monitor	-3.62	2.31	-3.08*	1.39
Maternal Relationship	-0.10	0.43	0.07	0.49
Paternal Relationship	-4.87	3.70	-3.45	2.15

Note. Ns range from 1143 to 1456.
* $p<.05$

The preceding tables demonstrate that parenting, both maternal and paternal and monitoring and relationship quality, was often predicted by family structure transition status for Caucasian youth, such that overall, never being in a two-parent family was associated with lower quality parenting, and not being in a single-parent family was associated with higher quality parenting at the next wave. For African American youth, relatively fewer relations were seen. The hypothesis that being in a single-parent family/non two-parent family would be riskier for Caucasian than African American youth was supported in these

findings. It was also hypothesized that transitions would affect Caucasian youth and African American youth similarly; in that the true transition categories coded (from one family structure to another rather than two categories described above) did not produce effects on parenting, this hypothesis was also supported.

The next step was to run logistical regression analyses to generate the "b" paths of the mediational model separately by race, using only the mediators that were significant in the previous analyses. Thus, logistical regressions predicting alcohol initiation with both family structure transition and the selected mediators were run; the paths representing the effect of the mediators on initiation controlling for family structure represented the "b" paths of the mediational model. The product of coefficients method was again employed to generate the estimate of each indirect effect and, in cases in which multiple mediators were significant, the total indirect effect. Tables 40 and 41 present these findings for the Caucasian and African American subsamples of youth.

Table 40.

Mediational Effects of Family Structure Transition on Alcohol Initiation: Subsample of Caucasian Youth

		Wave 2		Wave 3	
IV	Mediator	(ab)	SE	(ab)	SE
	Transition Type 1: Two-parent families				
Never two-parent					
	Maternal monitoring	-0.09*	0.03	-0.07*	0.02
	Paternal monitoring	-0.12*	0.03	-0.12*	0.03
	Maternal relationship	-0.08	0.09	-0.09*	0.02
	Paternal relationship	-0.20*	0.04	-0.16*	0.04
	Total mediated effect	-0.23		-0.21	
	Transition Type 2: Single-parent families				
Not single at t-1					
	Maternal monitoring	-0.07*	0.03	N/a	N/a
	Paternal monitoring	-0.17*	0.08	N/a	N/a
	Maternal relationship	-0.10*	0.03	-0.10*	0.03
	Total mediated effect	-0.16			

Note. *p<.05. "n/a" indicates that mediation was not tested because the combination of variables did not meet initial criteria for mediation.

Table 41.

Mediational Effects of Family Structure Transition on Alcohol Initiation: Subsample of African American Youth

		Wave 2		Wave 3	
IV	Mediator	(ab)	SE	(ab)	SE
	Transition Type 1: Two-parent families				
Never two-parent					
	Paternal monitoring	-0.08	0.05	N/a	N/a
	Paternal relationship	-0.10	0.06	N/a	N/a
	Total mediated effect	-0.12			
	Transition Type 2: Single-parent families				
Not single at t-1					
	Maternal monitoring	-0.05	0.03	N/a	N/a
	Paternal monitoring	N/a	N/a	-0.22	0.14

Note. *p<.05. "n/a" indicates that mediation was not tested because the combination of variables did not meet initial criteria for mediation.

The preceding tables indicate that parenting significantly mediated the effect of never living in a two-parent family (compared to living in a two-parent family across two waves) and not living in a single-parent family (compared to staying in a single parent family) on alcohol initiation for Caucasian youth, but not African American youth. For African American youth, none of the parenting variables significantly mediated the family structure/transition to alcohol initiation relation at either wave.

DISCUSSION

Summary and Discussion of Research Findings

The purpose of this study was threefold: to examine the relations between family structure and substance initiation, parenting, income, and residential mobility in early adolescence; to examine whether transitions between family structure categories predicted substance initiation longitudinally – and if so, whether the relation between transitions and initiation could be explained partially or in full by the mediating influence of parenting, income, or residential mobility; and finally, whether these relations differed for Caucasian and African American youth. A smaller question answered by the current study was whether youth (substance initiation status) and parent (levels of monitoring and relationship quality) characteristics predicted family separations. This study found that living in family structures other than two-parent families was consistently associated with higher concurrent levels of substance initiation, lower parental monitoring and relationship quality, lower income, and higher residential instability. Single-parent families were particularly at risk for parenting and income deficits, whereas stepfamilies were at risk for parenting deficits and higher residential mobility, in comparison to two-parent families. The effects of transitions from one family type to another on substance initiation and parenting were less robust than hypothesized, possibly due to the lower-than-expected percentage of youth experiencing many transition types, but these analyses reinforced the notion that consistently living outside a two-parent family, or consistently living in a single-parent family, is associated with decreases (or smaller increases) in parenting, income, and residential stability over time. In some cases, these changes were found to mediate relations with substance initiation.

Specifically, parenting mediated the relation between never living in a two-parent family and alcohol initiation; and parenting and residential mobility mediated the relation between never living in a two-parent family and marijuana initiation. Decreases in income mediated the relation between transitioning from a two-parent family to another type and marijuana initiation. Residential mobility mediated the relations between transitioning from single-parent or cohabiting families to other family types on alcohol and marijuana initiation. These mediated effects were significant, but small in magnitude, accounting for relatively little of the variance in youth substance initiation.

Analysis of racial differences showed that African American youth were more highly exposed to most of the risk factors for substance initiation in the current study: living outside a two-parent home, and on average lower reported levels of father-child relationship quality and paternal monitoring; income; and residential stability. As hypothesized, African American youth were less affected by living in single-parent and other "non-traditional" family structures; they were also less strongly affected, in terms of risk for substance initiation, by parenting quality than were Caucasian youth. Perhaps due to the weaker relations between living outside a two-parent family and substance initiation for African American youth, none of the hypothesized mediators – parenting, income, or residential mobility – served as significant mediators of the relations between family structure/transition and initiation for African American youth; and running these analyses without African American youth in the sample strengthened the meditational findings for Caucasian youth.

The proportion of youth in this study who had initiated alcohol and marijuana use within age groups from 12 to 15 was roughly in line with other national samples, with nearly 50% of African American and over 60% of Caucasian youth having initiated alcohol by age

14-15, and 20% of African American and nearly 30% of Caucasian youth having initiated marijuana by age 14-15 (SAMHSA, 2009). The finding that a greater percentage of Caucasian youth had initiated each substance at each wave was also in line with other widely published findings (SAMHSA, 2009). Again consistent with previous findings, African American youth were over-represented in single-parent and other non-two-parent family types, particularly single-parent extended and extended parent only families (see Ginther and Pollack, 2004; U.S. Census Bureau, 2009). Most Caucasian youth lived in two-parent families at every wave, whereas most African American youth lived in single-parent families. There was, however, more diversity in the living situations of African American youth.

This study found that African American youth reported lower paternal monitoring and relationship quality, but that there were no race differences in maternal parenting. African American youth were also higher in residential mobility and lower in income, making them generally at higher risk on most of the hypothesized mediator variables specified by the current study. In fact, in this sample, the mean family income of Caucasian youth was roughly double that of African American youth. Previous studies have also found that African American youth in general are exposed to more ecological (i.e., economic and neighborhood level) risk factors (for example, see Wallace & Muroff, 2002); relatively fewer studies have found differences in parenting quality, although some have (see Dunifon and Kowaleski-Jones, 2002).

Relatively few youth in this study were affected by certain family structure transitions during the observed time period. Roughly 18% of youth in the sample experienced any transition between the first and second waves, and 13% between the second and third waves. Divorce or separation among two biological parents was relatively rare during the time

period studied, affecting roughly 4-5% of youth in this sample. Divorce or separation was more common in stepfamilies, reflecting previous research that has indicated that marriages subsequent to the first tend to be less stable (i.e., see Jeynes, 2006).

Single-parent and extended-only families were somewhat less stable again, with about 15-25% of youth in these families experiencing a change, although these transitions varied qualitatively, with single-parent families changing through the addition of a partner: either the addition of the original second parent, or the acquisition of a stepparent or cohabiting partner. On the other hand, extended-only families most often changed by the addition of one of the child's parents; or a transfer of custody back to that parent. The yet more unstable single-parent plus extended relative families most often changed through the extended relatives moving out or the single parent moving back to an independent residence.

The most unstable family structures in the current study were the cohabiting families, which is consistent with the research of Bumpass and Lu (2000). A full 70-80% of these families underwent a transition in a one-year period. These changes were characterized both by marriages and, presumably, break-ups, with the transitions to stepfamilies and single-parent families respectively. Due to the quite small number of youth in this family structure at any given wave, as well as the quite different outcomes associated with transitioning out of this family structure, further analyses with this group proved difficult.

The first hypothesis of the study stated that those in two-parent families would experience better quality parenting, in terms of higher levels of monitoring and satisfaction with their relationship with their parents, as well as higher income and lower residential mobility and a lower likelihood of alcohol and marijuana initiation, compared to youth in other family structures, consistent with the work of many researchers (e.g., Astone &

McLanahan, 1994; Borawski et al., 2003; Eitle, 2005; Gordon-Simons et al., 1996; Hoffman, 2006; Hoffman & Johnson, 1998; Oman, 2002, 2007). These predictions were mainly confirmed. It was found that living in a two-parent family was consistently associated with higher levels of maternal and paternal monitoring and relationship quality, as well as higher income and lower residential mobility, controlling for youth age and sex. Contrary to some studies that have found that maternal parenting is fairly invariant across family structure types (for example, Amato, 1987), the current study found that those in two-parent families reported better maternal relationship quality than those in single- and single-parent extended relative families, and higher maternal monitoring than those in all other family types. Paternal monitoring and relationship quality was found to be higher in two-parent families than in stepfamilies, single-parent and single-parent extended families, and "other" families, consistent with the work of Carlson (2006). The current study adds to the relatively limited literature on the influence of family structure and transitions on paternal parenting.

Income and residential instability were consistently lower for all other family types compared to two parent families. Two-parent families had the highest incomes and the lowest residential mobility, consistent with prior research (i.e., Astone & McLanahan, 1994; Hoffman & Johnson, 1998). The incomes of two-parent families were two to three times higher than those of the lowest-earning family structures, namely extended-only, single-parent extended, and single-parent families. Stepfamilies had also had higher incomes than family types containing a single parent (consistent with the work of Demo & Acock, 1996), but were still only approximately 2/3rds that of two-parent families.

In this sample, as in others, the percentage of substance initiators was smallest among those in two-parent families (see Hoffman & Johnson, 1998). This study found that in terms

of alcohol, the percentage of youth who had initiated in single-parent extended families was more comparable to two-parent families than the other structures, similar to the findings of Deliere and Kalil, 2002, whereas the youth in cohabiting families consistently had the highest percentage of initiators. The results were more variable for marijuana initiation, with no clear patterns emerging other than the consistent finding that marijuana initiation was least likely in those from two-parent families.

Of the six (step-, single, single-extended, cohabiting, and "other") family structure types that were compared to the two-parent family reference group, those in step- and single-parent families were most often at greater risk for substance initiation than those in two-parent families. However, at the first wave, members of each of the other family types were at a disadvantage compared to two-parent families in terms of likelihood of substance initiation. In general, there were more differences between non-two-parent family structures and two-parent families when comparing them by marijuana initiation than by alcohol initiation, across all three waves. One interpretation of this difference is that alcohol initiation, being somewhat more normative than marijuana initiation among members of this age group, is less likely to be impacted by concurrent variables, but rather by historical family structure.

The hypotheses associated with the second goal of the study – that family structure transitions would be associated with changes in parenting, income, and residential stability, and subsequently with alcohol and marijuana initiation – were only partially supported. In comparison to consistently living in a two-parent family, only never living in a two-parent family across two waves – not really a transition at all – was associated with an increased risk of alcohol initiation. In addition to never living in a two-parent family, an increased risk

of marijuana initiation was also associated with transitioning from a two-parent family to any other family type, consistent with hypotheses. For both alcohol and marijuana, not living in a single parent family at the previous wave – again, not a true transition – was associated with lower risk of initiation compared to consistently living in a single-parent family. Additionally, transitioning from a single-parent to a single-parent extended relative family was associated with an increased likelihood of marijuana initiation compared to consistently living in a single-parent family. This finding adds a dynamic component to studies that have found that the presence of extended family members in the home is linked to negative youth outcomes (e.g., Hill et al., 2001), but was inconsistent with the hypotheses of the current study, which were based on Deliere and Kalil's (2002) findings regarding the beneficial influence of extended family members. More targeted research is needed regarding under what circumstances the presence of extended family members in the home is helpful versus hurtful.

There were no significant relations between transitioning out of a cohabiting family into any other family type and substance initiation. As will be discussed in more depth in the Limitations section, despite the very large overall sample size, a small number of youth lived in a cohabiting family at any point, and despite the large amount of instability within this structure, only a portion of them experienced a transition between each wave. This sample size limitation led to quite a bit of variability in the data, large standard errors, and difficulty establishing significance, particularly in analyses with other variables with large amounts of missing data (such as the fathering variables, for instance).

Generally, in the current study, there were few direct effects of family transition on substance initiation. This was inconsistent with previous findings on the importance of

transitions (e.g., Kirby, 2002; Rebellon, 2002). However, the current study examined the impact of transitions within a relatively short period (one year), rather by assigning youth to transition categories based on a lifetime of transitions (as, for example, Carlson and Corcoran (2001) did), and it is possible this time period was too short to observe the full impact of events. Alternatively, it is possible that experiencing one transition is not strongly linked to negative outcomes for most youth, but rather, consistent with a large body of research (e.g., Juby & Farrington, 2001; Peterson & Zill, 1986), multiple transitions are more likely to be harmful.

Transitions in family structure also rarely predicted changes in parental monitoring or relationship quality. Compared to consistently living in a two-parent family, never living in a two-parent family was associated with a larger decrease in paternal monitoring and relationship quality at Wave 2; as well as larger decreases in maternal relationship quality at Waves 2 and 3. Although relatively few results reached significance, this study advanced the understanding of the effects of specific transitions on changes in parenting and substance initiation, as previous studies have used number of transitions or static family structure to predict outcomes rather that examining the effect of specific changes on outcomes (e.g., Capaldi & Patterson, 1991; Keller et al., 2002; Rebellon, 2002).

As hypothesized, decreases (or smaller increases) in income were associated with never being in a two-parent family, transitioning from a two-parent family to any other family type, as well as transitioning to a two-parent family from any other family type. This last finding is somewhat counter-intuitive; however, in that the reference group was always being in a two-parent family, it is possible that an increase in income was experienced by families consistently headed by two biological parents that was large enough that the smaller

income increase associated with transitioning to a two-parent family did not match it. That is, any time spent outside of a two-parent family represents a lost opportunity in terms of increased income over time. Additionally, not being in a single-parent family at the previous wave was associated with an increase in income compared to those consistently in a single-parent family. No other family structure transitions were significantly associated with changes in income.

The effects of transition on residential mobility were similarly more robust than the effects on parenting. Consistent with hypothesis, increases in residential mobility were associated with never being in a two-parent family, as well as transitioning from a two-parent family to any other family type, compared to those consistently in two-parent families. Compared to those consistently in single-parent families, experiencing fewer residential moves was associated with not being in a single parent family at the previous wave; whereas experiencing more moves was associated with transitioning from a single-parent family to a stepfamily, a cohabiting family, a single-parent extended relative family, and all other family types. Lastly, compared to those consistently in a cohabiting family, transitioning to a stepfamily or any other family type was associated with an increase in residential mobility.

The next step in the chain of associations required to demonstrate mediation was establishing a relation between the hypothesized mediator variables and the outcomes of interest. In this case, it was hypothesized that lower parental monitoring and relationship quality, lower income, and lower residential stability would be associated with an increased risk of substance initiation. For the purposes of the current study, the relations of interest were concurrent, in that it was hypothesized that changes in family structure from one wave to the next would result in changes in the mediator variables, which would result in increased

risk of concurrent substance initiation (rather than the alternative, which would be measuring substance initiation one year later -- although such a model is plausible, it was rejected for the current study due to the concern that a lapse of a year might introduce too many other confounding variables that could influence substance initiation). Entering each of these six parenting, income, and residential mobility variables into models predicting alcohol and marijuana initiation showed that for both alcohol and marijuana initiation, parenting variables tended to account for most of the variance in the models, although both income at Wave 1 and residential mobility at Wave 3 were also significant concurrent predictors of alcohol initiation. For marijuana initiation, maternal monitoring and paternal relationship quality produced concurrent and long-lasting (to the next wave) effects, whereas for alcohol initiation, no parenting variables were consistently predictive; rather, each was predictive at different waves.

Examining the effects of each group of mediators on initiation revealed that the main part of the parenting hypothesis was upheld, in that maternal and paternal monitoring and maternal and paternal relationship quality were each concurrently related to alcohol and marijuana initiation at Waves 1, 2, and 3. To further examine the relations among these variables, two additional steps were taken: (a) level of the predictor at the previous wave was added to the model to estimate the influence of change in the predictors on initiation, and (b) models were constructed to compare the relative amount of variance accounted for by monitoring (maternal and paternal) versus relationship quality (maternal and paternal). These further analyses showed that both the monitoring and relationship quality models accounted for between 7 and 8 percent of the variance in both alcohol and marijuana initiation. This points to the importance of both warmth and structure in preventing the early

onset of youth substance initiation rather than the predominance of one type of parenting. Research on authoritative parenting, and the importance of a well-integrated parenting style in achieving the best outcomes and preventing negative youth outcomes support this finding (e.g., Dishion & McMahon, 1998; Fletcher & Jeffries, 1999).

When all four parenting variables were entered simultaneously into one model, the results did not produce consistent, conclusive evidence of one parent gender or parenting method being more strongly linked to alcohol or marijuana initiation than the rest, although there were some suggestive patterns. Entered into the same model, maternal monitoring and paternal relationship quality were more often linked to substance initiation outcomes than were maternal relationship quality and paternal monitoring. Although this finding has not been corroborated by prior research, it suggests the possibility that there might exist an interaction between parent gender and dimension of parenting. However, this finding could also be attributed to the pattern of correlations among predictors, and therefore future research designed to test this hypothesis explicitly is needed. Controlling for previous levels of the predictor variables, only maternal variables remained significant concurrent predictors of both alcohol and marijuana use: specifically, maternal monitoring at Wave 2 significantly predicted both alcohol and marijuana initiation, and maternal relationship quality at Wave 3 significantly predicted alcohol initiation. This suggests that previous levels of fathering especially shared a large amount of variance with current levels of fathering and mothering alike. It is possible that the effects of fathering had reached equilibrium in their relation to mothering and substance initiation by the second and third waves.

This study also examined the influence of income and residential mobility on alcohol and marijuana initiation. No relations were found between income and the initiation of

alcohol or marijuana use in this study, which is consistent with previous research that suggests that income *per se* may play little role in the use of substances, although it may be related to the availability of substances or peer attitudes (e.g., Maddhian, Newcomb, & Bentler, 1986). Particularly in that the current study focused on initiation, which may involve only one-time use, this findings is perhaps not surprising. The number of moves between each wave of data collection was predictive of marijuana initiation, whereas alcohol initiation was only predicted by moves between the first two waves (i.e., 1997 to 1998). This is consistent with prior research on the link between residential mobility and substance initiation, some of which indicates a stronger relation to marijuana initiation than alcohol initiation (e.g., DeWit, 1998). In general, previous research has found that the risk for alcohol initiation peaks earlier in adolescence than does the risk for marijuana initiation (Kosterman et al., 2000), suggesting the potential that some of these hypothesized mediating variables would have shared a stronger relation with alcohol initiation earlier in adolescence.

It was also hypothesized that the six parenting, income, and residential mobility variables would mediate the relation between family structure transitions and substance initiation. This hypothesis was examined in two ways: (1) by hierarchical regression, in which the relation between transition and initiation was examined both with and without the hypothesized mediators in the model, and (2) using a product of coefficients method, but only for those cases in which transitions significantly predicted mediators, which in turn significantly predicted initiation, as per MacKinnon's (2008) guidelines. For alcohol initiation, the significantly different transition categories were "never two-parent" (as compared to consistently two-parent); and "not single at the previous wave" and "single to stepparent" (as compared to consistently single-parent). Adding the four parenting variables

to these models caused these significant differences to become non-significant. For the set of analyses examining marijuana initiation, the only initially significant transition type was "never two-parent" compared to consistently two-parent. This relation was reduced to non-significance by the introduction of the parenting variables at Wave 2, but not at Wave 3. Although the odds ratio associated with the difference was reduced from 1.85 to 1.61, it remained significant. In contrast to the powerful effect of parenting on the relation between significant family structure transitions and substance initiation, income and residential mobility had little effect. Neither variable changed the significance of the relation between any significant family structure transition and alcohol or marijuana initiation.

The product of coefficients mediational analysis showed that paternal monitoring and maternal relationship quality were significant mediators of the relation between never being in a two-parent family and alcohol initiation at Wave 2 (compared to consistently being in a two-parent family). Specifically, youth who were not in two-parent families experienced larger decreases in paternal monitoring and maternal relationship quality compared to those consistently in two-parent families, resulting in an increased relative risk for initiation. The total mediated effect of each of these variables on alcohol initiation was estimated at B = -.04; residential mobility did not prove to be a significant mediator on its own. When the total mediated effect was calculated with residential mobility in the model, the effect was estimated at B = -.10. At Wave 3, only paternal relationship was a significant mediator, although the mediated effect was very small. These figures represent how much a 1 unit change in transition status (i.e., the difference between being in a consistently two-parent family and not) affects substance initiation indirectly through parenting and residential mobility, and represent a small proportion of the associated change in risk.

The results for marijuana initiation were somewhat different. Like alcohol initiation, paternal monitoring and maternal relationship were significant mediators of the "never two-parent" effect at Wave 2; but so too was residential mobility. At Wave 3, paternal relationship was the only significant mediator of this relation. At Wave 3, residential mobility was also a significant mediator of the relation between transitioning from a two-parent family to any other type and marijuana initiation. As seen in the earlier analyses, residential mobility did not have as strong a relation with alcohol initiation as compared to marijuana initiation, reducing the likelihood of a significant mediated effect.

Residential mobility was a significant mediator of the relation between transition from a single to a stepfamily or to the "other" group (mainly comprised of extended family only and adoptive and foster families) and alcohol and marijuana initiation at Wave 2. For marijuana initiation, residential mobility mediated the effect of not living in a single-parent family at Wave 2, and transitioning from a single-parent family to the "other" group. It additionally mediated the relation between transitioning from a cohabiting to a stepfamily or "other" family at Waves 2 and 3 for alcohol and marijuana. The total mediated effect for these cohabiting transitions on marijuana initiation were (relatively) high compared to the other mediated effects seen in this study, at B = .22 to .27. Residential mobility played a stronger meditational role in what was deemed Transition Types 2 (single-parent transitions) and 3 (cohabiting transitions) than in two-parent transitions in this study. It is possible that these family changes are more closely linked to these factors, particularly for those in the most unstable cohabiting unions, where the custodial parent likely remained the same, resulting in higher stability of parenting, but economic and particularly residential changes are quite likely.

The overall findings of the meditational analyses provided support for both the parental socialization and control theories of family structure influence, as well as the stress and strain theories. The results of the current study suggest that ecological factors (e.g., income and particularly residential mobility) are of greater importance in explaining the mechanism of influence for the impact of changes within single-parent families and cohabiting families, as compared to two-parent families (for whom they may be less frequent or turbulent). The current study adds to the available literature providing empirical tests of competing theories (e.g., Kirby, 2002), and makes a novel distinction regarding the different mechanisms that may impact different types of transitions.

The final set of hypotheses of the current study had to do with racial differences in the previous hypotheses. Specifically, it was hypothesized that African American youth would experience fewer negative associations with living in non-traditional family structures. It was also hypothesized, however, that transitions would be equally negative for African American and Caucasian youth, as the strain associated with change would not vary as a function of race. As has been found in many previous studies (e.g., Johnston et al., 2006; Simons-Morton et al., 2001), Caucasian race was associated with both alcohol and marijuana initiation. The first part of the racial hypothesis was upheld in that living in a stepfamily was more highly associated with alcohol initiation; living in a single-parent family was more highly associated with marijuana initiation; and living in an "other" family type was more highly associated with both types of substance initiation for Caucasian youth than African American youth. It has been hypothesized that these differences may be related to the generally higher prevalence of "non-traditional" family structures among African American youth, possibly resulting in a higher perceived relative normalcy of these arrangements as

compared to Caucasian youth (e.g., McLoyd et al., 2000). Evidence that does not support this theory is the fact that roughly equal proportions of African American and Caucasian youth lived in stepfamilies in the current study, but Caucasian youth experienced greater related risk.

Although specific hypotheses were not made regarding Race by Mediator (parenting, income, and residential mobility) interactions, for the sake of consistency, each of the equations run for the whole sample was also run with race as a moderator. This study found that low levels of maternal relationship quality were more highly associated with alcohol initiation for Caucasian than for African American youth. There were no Race by Parenting interactions in the prediction of marijuana initiation, suggesting that parenting was equally influential in the initiation of that substance. There were also no Race by Income or Race by Residential Mobility interactions in the prediction of either alcohol or marijuana use.

In general, research suggests that Caucasian youth are more sensitive to the impact of most risk factors associated with substance initiation than are African American youth (e.g., Griesler & Kandel, 1998; Wallace & Muroff, 2002), and these results are consistent with those findings. Conversely, Griesler and Kandel (1998) and Dunifon and Kowaleski-Jones (2002) found that parenting factors in particular (monitoring, warmth, and control) were more highly associated with cigarette smoking and delinquency for African American than for Caucasian youth, which is consistent with research that has posited a stronger family orientation in African American youth. More research is needed to elucidate the circumstances under which risk factors may operate differentially for youth of different races, which has strong implications for prevention. The current research suggests that although parenting interventions may be effective for Caucasian youth, there may be as-yet

identified risk factors that would be more helpful to target in the prevention of substance initiation in African American youth.

In terms of transitions, it was predicted that these would affect Caucasian and African American youth similarly. This hypothesis was mostly upheld in the sense that there were few significant findings for either race. Compared to those continuously in a two-parent family, never living in a two-parent family was more strongly associated with alcohol initiation for Caucasian youth than African American youth. However, considering that this was not a true transition category, this serves to more strongly support the first part of the race hypotheses, that living in "non-traditional" family structures is perhaps less harmful to African American youth. Similarly, the positive effect of not living in a single-parent family at the previous wave in reducing the likelihood of alcohol initiation was found to be stronger for Caucasian than African American youth. There were no Family Structure Transition by Race interactions in the prediction of marijuana initiation.

The last set of analyses built on the race-moderated analyses described above, and involved the analysis of mediated effects of family structure transition on substance initiation only for those combinations of variables that were significantly moderated by race. Examination of race-moderated effects suggested that (a) the effects of family structure transitions and the hypothesized parenting mediators were sometimes moderated by race in their effects on alcohol initiation, (b) there were no race-moderated effects when marijuana initiation was the dependent variable, (c) income and residential mobility were not moderated by race in their effects on substance initiation, and (d) cohabiting transitions were not moderated by race in their effects on substance initiation. When the product of coefficients mediational analysis was conducted separately for Caucasian and African American youth,

only for transition categories previously shown to be significantly related to alcohol initiation, it showed that for Caucasian youth, all four parenting variables significantly mediated the relation between never living in a two-parent family (vs. consistently living in one) and alcohol use; and that maternal monitoring, paternal monitoring, and maternal relationship significantly mediated the relation between not living in a single parent family at the previous wave and continuously living in one. On the whole, these effects were larger than they were when calculated for the entire sample. In contrast, none of the parenting variables significantly mediated the effect of any family structure transition on substance initiation for African American youth, again pointing to the need for research on factors that do contribute to increased risk for substance initiation in African American youth.

As a smaller question, this study sought to examine whether adolescent substance initiation and parental monitoring and relationship quality were predictive of parental separations (from a two-parent or stepparent family to any other family type) at the next wave. The hypothesis that selection effects would exist was partially supported. Alcohol initiation at the first wave predicted separations, but marijuana initiation did not. When this model was re-run with race as a moderator, marijuana initiation was more predictive of parental separations for African American youth. Interestingly, no mothering variables predicted separations, but both paternal monitoring and relationship quality predicted separations one year later at both waves. There were not any Race by Parenting interactions in the prediction of separations. This study supports prior research suggesting families that will experience a transition in the future are marked by parenting deficits (e.g., Sun, 2001), and provides a basis for future research to corroborate the finding that paternal parenting behavior is more predictive than maternal parenting behavior.

Limitations and Directions for Future Research

This study attempted to improve upon previous studies in the family structure literature in several ways. It examined possible mediators of the oft-found relation between family structure and transitions and youth adjustment, in both the family and larger ecological domains, and provided a more rigorous test of mediation than has been presented in many studies. It expanded the knowledge available about family structure effects on substance initiation in a field that has been more focused on effects on delinquency and educational outcomes. The current study also made two distinctions not always made in other studies of family structure, by examining both static family structure categories as well as transitions; and by examining the effect not only of transitions on parenting and youth adjustment, but also the reciprocal of that relationship. Finally, this study included a systematic examination of the influence of race as a moderator of family structure and transition effects, and examined how meditational processes might differ for African American and Caucasian youth. Knowing as we do that family structure and substance initiation vary as a function of race, examining racial differences is important in any study examining the relation between these constructs.

Despite these advantages, there are several important limitations that should be taken into consideration when interpreting the current study, which also present avenues for future research. First, in considering the volume of analyses, consisting of both multiple variables and multiple waves, it is important to be conscious of the possibility of an inflated Type I error rate, particularly for those results that were not consistent across waves. Although inconsistently significant results or those contrary to hypothesis may represent true differences that are manifested at different ages or merely unexpected, they may also simply

represent chance error, and thus should be interpreted with caution and subject to careful replication. Additionally, the large sample size allows for the detection of small effects that may be of limited practical significance. Thus, effect sizes have been emphasized where possible.

Additionally, as was mentioned earlier in summarizing and interpreting the results of the current study, the number of youth affected by certain transitions was so small that it precluded examining differences between transition groups, especially on variables that already had some amount of missing data. The extreme variability within the estimates of the effects of transitions out of cohabiting family structures are just a prime example of a larger problem within the data, which was that in general, many transitions were quite uncommon. This was surprising considering the sample size of the National Longitudinal Survey of Youth; however, once the sample was limited by sibling status, race, and age, the sample was reduced to just over 2,000 youth – certainly more than adequate for most analyses. However, given that fewer than expected youth lived in certain family structures, such as cohabiting and single-parent extended families, and only a portion of these experienced a transition during the time period studied, the numbers of youth affected were quite small. This posed a challenge for analyses in which there was a substantial amount of missing data, as those employing the paternal parenting variables. This limitation points to the need for future studies that can employ an even larger or more complete dataset to examine these issues, or can employ more sophisticated statistical methods to control for variance in datasets that do not limit the sample by other variables, such as age.

Although it had advantages, in that it tested the stated hypotheses in a very clear fashion, the dummy coding scheme devised to measure the influence of transitions on

mediators and outcomes created quite a bit of "noise" in comparisons in which a youth transitioned from any family structure category (such as a two-parent family) to anything else, or from a single-parent family to anything else. Although these dummy coded comparisons were consistent with the hypotheses of the current study, and although within the current study, there likely would not have been sufficient participants to break these transition categories down further, a more refined coding scheme may have resulted in a greater ability to detect the effects of family structure transitions. Another variable not considered in the current study that may have been predictive of outcome based on the findings of other researchers (e.g. Capaldi and Patterson, 1991) would be number of family structure transitions experienced during the observed period. An additional coding issue that limits interpretation of the results of the current study is the definition of cohabiting families chosen, that is, a biological parent living with another unrelated adult. Although this coding approach was necessitated by the lack of information regarding romantic bonds with this live-in adult in the NLSY97, and is consistent with some other researchers definition of cohabiting, it is likely that some proportion of the youth in "cohabiting" families were in fact living with a parent and a parent's roommate or similar.

The data missing for many youth on the paternal parenting variables was logical in terms of the composition of the sample by family structure, but brings up another important limitation of the current study, which is the interpretation of the father data more generally. Youth were instructed to report on their residential "father or father-figure." This is problematic for two reasons. First, youth may have reported on males to whom they had various relationships due to the NSLY's questionnaire wording, allowed youth latitude in determining a who was a father figure to them. Thus, changes in paternal parenting

discovered in the current study may reflect different processes for different youth. Secondly, it is likely that youth who had data available on the paternal parenting variables were different in unmeasured ways than youth who did not, in that their father or father figures were present enough for them to be able to report on their monitoring and the quality of their relationship with them. Thus, although this study did find that lower quality paternal parenting mediated the effect of not living in a two-parent home (compared to consistently living in a two-parent home) on substance initiation, this is obviously true only for those youth who had available fathering data. Thus, we cannot draw conclusions about the impact of paternal parenting on the large number of youth who did not report on this variable. This is a limitation considering the available research that suggests that a good relationship between youth and non-residential fathers can be an important protective factor for adolescents in single-parent families (e.g., Thomas, Farrell, & Barnes, 1996).

Further, we know from previous survey data that African American youth in particular are overrepresented in single mother families, resulting in a sample in which fathering data were more likely missing from one racial category than the other. This may have contributed to greater variance within analyses employing fathering data for African American youth, and limits our ability to draw conclusions from the current study's finding that paternal parenting mediated the effect of family structure/transition on initiation for Caucasian but not African American youth. Thus, although the NLSY97 oversampled for minority youth, again, this limitation shows the need for studies with larger African American subsamples, or studies done using predominantly African American populations.

This study was also limited in that several important covariates of the independent and dependent variables were not included, which may have influenced the outcome of some

analyses. Specifically, deviant peer associations have been described as a particularly important source of variance in substance initiation, and are themselves affected by parenting variables, particularly monitoring (e.g., Ary, Duncan, Duncan, & Hops, 1999). Not including peer deviance may have resulted in an underestimate of the influence of family factors on substance initiation, in that it may act as a proximal mediator of that relation. In fact, parenting might not show much of a direct effect on substance initiation without examining how it influences the developmentally earlier attainment of deviant peers (Dishion, Patterson, Stoolmiller, & Skinner, 1992). Eitle (2005) has even found that deviant peer association moderates family structure to the extent that living in a two-parent family is only protective against substance use for youth at low levels of deviant peer exposure. Peer deviance has also been linked to residential mobility, and may again act as the more proximal cause of substance initiation among youth who move often (see Haynie, South, & Bose, 2006). Studies of residential mobility additionally indicate the importance of characteristics of the move, including whether the child entered a new school or neighborhood in which a bond to a previous conventional institution may be lost and deviant peer influences may be gained (e.g., Haynie et al., 2006), which this study did not examine.

Additionally, due to the strong influence of parental substance use and messages on adolescent initiation (e.g., Andrews, Hops, Ary, Tildesley, & Harris), both in terms of genetic and environmental influences, a failure to take into account or at least control for the influence of parental substance use may have resulted in confounding relations with other potentially related variables, including parenting, income, and so forth. Unfortunately, the NLSY97 data did not include an estimate of parental substance use or messages regarding use.

This study also relied on self-report data of both substance initiation and parenting, allowing for the possibility of systematic underreporting of sensitive risk behaviors or misperception of parenting behaviors. Although students were assured of confidentiality, they may have underreported their substance use. Using more than one source of data would have strengthened findings by corroborating student report. This limitation may be particularly salient in the case of parental monitoring, in which parental report would have added important information and may even have increased the predictive power of the construct. Many previous studies that have found parental monitoring to be protective against problem behavior in youth have used both parent and child reports (e.g., Griffin et al., 2000). Other studies have found that parent and child reports of family process variables are only weakly related, and each may make independent contributions to the explanation of problem behavior (Krohn, Stern, Thornberry, & Jang, 1992). Further, Lansford, Ceballo, Abbey, and Stewart (2001) also found that the results of analyses examining family structure effects on youth adjustment vary widely by informant, and that those using mother report were most often mediated by family process variables.

Additionally, the current study did not take into account the gender of the biological/custodial parent in stepfamilies and single parent families, and as such, necessarily did not examine possible interactions between youth gender and custodial parent gender. Some previous research (e.g., Eitle, 2006; Demuth & Brown, 2004; Hemovich & Crano, 2009) has found that youth adjustment may vary in single-parent and stepparent families depending on the gender of the custodial parent, with some further finding that youth gender interacts with this relation, such that same-sex parent-child family structures result in better adjustment, particularly for girls.

Some might argue that the clear advantages experienced by youth from two-parent homes seen in this study in terms of better quality parenting, higher family incomes, fewer moves, and lower risk of substance initiation call for public policy to support the institution of marriage in general, but particularly the continued union of biological parents. However, several important issues were not addressed in the current study limit the ultimate applicability of these findings in terms of policy implications. First, several researchers have argued that the quality of the parental union has a strong impact on youth outcomes – parental marital relationship quality was not measured in this study as a moderator of the family structure-outcome relations. Nor was contact with and relationship with the non-residential parent. Further research has suggested that youth who are in frequent contact with, and feel they have a warm and supportive relationship with a non-residential parent have outcomes more similar to those in two-parent homes.

However, it can be concluded from the current study, that, on average, youth from two-parent homes have many advantages, and that not being in a two-parent home over time can result in decreases, or smaller increases, in parenting quality, income, and residential stability, that may in turn result in increased risk for substance initiation. Although such mediational effects were not pronounced in African American youth, African American youth were exposed at higher levels to all of the risk factors for substance initiation examined in the current study. In that we know from previous studies that early initiation of substances is associated with increased risk of not only dependence but also other negative outcomes, it is important to attempt to apply the findings of this study in a way that can be of practical use to policy-makers, clinicians, and parents alike. Due to the need for future research described above, it is recommended that funding for family-based research be a priority in the

prevention of substance initiation among youth. Additionally, social services providing parent training to youth at risk for substance initiation and other negative outcomes due in part to living in step-, single-, or other non-two-parent family structures should focus on empowering parents to maintain high levels of warmth and monitoring despite the stress (economic and residentially) sometimes associated with these structures. An additional focus of parent education should be on monitoring specifically the possible acquisition of deviant peers that may accompany a residential move and increase the risk of substance initiation and abuse. Although the current study did not find ample evidence for a transition effect, times of transition may be appropriate points of entry for the provision of such services, in terms of co-parenting programs, for instance, that focus on maintaining a high quality of both maternal and paternal parenting.

The finding that lower quality parenting and youth substance initiation in some cases precedes a parental separation illustrates the need for youth and family clinicians to be aware of how parenting a child using substances may put a strain on parents' ability to be warm and monitor well, and possibly disrupt the marital relationship; or in fact for disrupted marital relationships to result in lower quality parenting, and subsequent substance initiation and parental separation. Although the current study was not able to draw conclusions about the sequencing of events, family clinicians may focus on helping parents effectively parent a substance-using child while maintaining the quality of their own marital relationship; as well as help struggling families to reduce the risk of parental separations that may place children at increased future risk.

REFERENCES

Acs, G. (2007). Can we promote child well-being by promoting marriage? *Journal of Marriage and Family, 69,* 1326-1344.

Amato, P.R.. (1987). Children's reactions to parental separation and divorce: the views of children and custodial mothers. *Australian Journal of Social Issues, 22,* 610-623.

Andrews, J. A., Hops, H., Ary, D., Tildesley, E., & Harris, J. (1993). Parental influence on early adolescent substance use: Specific and nonspecific effects. *Journal of Early Adolescence, 13,* 285-310.

Ary, D.V., Duncan, T.E., Duncan, S.C., & Hops, H. (1999). Adolescent problem behavior: The influence of parents and peers. *Behavior Research and Therapy, 37,* 217-230.

Astone, N.N., & McLanahan, S.S. (1994). Family structure, residential mobility, and school dropout: A research note. *Demography, 31,* 575-584.

Baer, J. (1999). Family relationships, parenting behavior, and adolescent deviance in three ethnic groups. *Families in Society: The Journal of Contemporary Human Services, 279-285.*

Barnes, G. M., Reifman, A. S., Farrell, M. P., & Dintcheff, B. A. (2000). The effects of parenting on the development of adolescent alcohol misuse: A six-wave latent growth model. *Journal of Marriage & the Family, 62*(1), 175-186.

Bentler, P.M. (1990). Comparative fit indexes in structural equation models. *Psychological Bulletin, 107,* 238-246.

Biblarz, T.J., & Gottainer, G. (2000). Family structure and children's success: A comparison of windowed and divorced single-mother families. *Journal of Marriage and Family, 62,* 533-548.

Blau, D.M., & van der Klaauw, W. (2007). A demographic analysis of the family structure experiences of children in the United States.

Bramlett, M.D., & Mosher, W.D. (2002). Cohabitation, marriage, divorce, and remarriage in the United States. National Center for Health Statistics. Vital Health Stat 23(22).

Bray, J.H., & Hetherington, E.M. (1993). Families in transition: Introduction and overview. *Journal of Family Psychology, 7,* 3-8.

Brown, S.L. (2004). Family structure and child well-being: The significance of parental cohabitation. *Journal of Marriage and Family, 66,* 351-367.

Brown, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In: K.A. Bollen and J.S. Long, Editors, *Testing structural equation models*, Sage, Newbury Park, CA (1993), pp. 136–162.

Bumpass, L., & Lu, H. (2000). Trends in cohabitation and implications for children's family contexts in the United States. *Population Studies, 54,* 29-41.

Bumpass, L., & Sweet, J.A. (1989). National estimates of cohabitation: cohort levels and union stability. *Demography, 26,* 615-625.

Carlson, M. J. (2006). Family structure, father involvement, and adolescent behavioral outcomes. *Journal of Marriage and Family, 68*, 137-154.

Carlson, M.J., & Corcoran, M.E. (2001). Family structure and children's behavioral and cognitive outcomes. *Journal of Marriage and Family, 63*, 779-792.

Capaldi, D.M., & Patterson, G.R. (1991). Relation of parental transitions to boys' adjustment problems: I. A linear hypothesis. II. Mothers at risk for transitions and unskilled parenting. *Developmental Psychology, 27*, 489-504.

Cherlin, A.J. (1999). Going to extremes: Family structure, children's well-being, and social science. *Demography, 36*, 421-428.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112 (1),* 155-159.

Cohen, J., Cohen, P., West, S.G, & Aiken, L.S. (2003). *Applied multiple regression/correlation analyses for the behavioral sciences* (3rd ed.). New Jersey: Lawrence Erlbaum Associates.

Cole, D. A., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data: Questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology, 112*(4), 558-577.

Conger, R.D., & Elder, G.H. Jr. (1994). *Families in troubled times: Adapting to change in rural America*. Aldine de Gryyter: New York.

Crowder, K., & Teachman, J. (2004). Do residential conditions explain the relationship between living arrangements and adolescent behavior? *Journal of Marriage and Family, 66*, 721-738.

Dawson, D.A. (1991). Family structure and children's health and well-being: Data from the 1988 National Health Interview Survey on Child Health. *Journal of Marriage and the Family, 53*, 573-584.

Deleire, T., & Kalil, A. (2002). Good things come in threes: Single-parent multigenerational family structure and adolescent adjustment. *Demography, 39*, 393-413.

Demo, D.H., & Acock, A.C. (1996). Family structure, family process, and adolescent well-being. *Journal of Research on Adolescence, 6*, 457-488.

Demuth, S., & Brown, S. L. (2004). Family structure, family processes, and adolescent delinquency: The significance of parental absence versus parental gender. *Journal of Research in Crime and Delinquency, 41*, 58-81.

DeWit, D.J. (1998). Frequent childhood geographic relocation: Its impact on drug use initiation and the development of alcohol and other drug-related problems among adolescents and young adults. *Addictive Behaviors, 23*, 623-634.

DeWit, D. J., Adlaf, E. M., Offord, D. R., & Ogborne, A. C. (2000). Age at first alcohol use: A risk factor for the development of alcohol disorders. *The American Journal of Psychiatry, 157*, 745-750.

Dishion, T. J., & Medici Skaggs, N. (2000). An ecological analysis of monthly 'bursts' in early adolescent substance use. *Applied Developmental Science, 4*(2), 89-97.

Dishion, T. J., Patterson, G. R., Stoolmiller, M., & Skinner, M. L. (1991). Family, school, and behavioral antecedents to early adolescent involvement with antisocial peers. *Developmental Psychology, 27*(1), 172-180.

Dornbusch, S.M., Carlsmith, J.M., Bushwall, S.J., Ritter, P.L., Leiderman, H., Hastorf, A.H., & Gross, R.T. (1985). Single parents, extended households, and the control of adolescents. *Child Development, 1985*, 326-341.

Duncan, S. C., Duncan, T. E., Biglan, A., & Ary, D. (1998). Contributions of the social context to the development of adolescent substance use: A multivariate latent growth modeling approach. *Drug and Alcohol Dependence, 50*(1), 57-71.

Duncan, S. C., Duncan, T. E., & Strycker, L. A. (2006). Alcohol use from ages 9 to 16: A cohort-sequential latent growth model. *Drug and Alcohol Dependence, 81*(1), 71-81.

Dunifon, R., & Kowaleski-Jones, L. (2002). Who's in the house? Race differences in cohabitation, single parenthood, and child development. *Child Development, 73*, 1249-1264.

Dunn, J. (2002). The adjustment of children in stepfamilies: Lessons from community studies. *Child and Adolescent Mental Health, 7*, 154-161.

Eitle, D. (2006). Parental gender, single-parent families, and delinquency: Examining the moderating influence of race/ethnicity. *Social Science Research, 35*, 727-748.

Eitle, D. (2005). The moderating effects of peer substance use on the family structure-adolescent substance use association: Quantity versus quality of parenting. *Addictive Behaviors, 30*, 963-980.

Ellickson, P. L., Tucker, J. S., Klein, D. J., & Saner, H. (2004). Antecedents and outcomes of marijuana use initiation during adolescence. *Preventive Medicine: An International Journal Devoted to Practice and Theory, 39*(5), 976-984.

Falci, C. (2006). Family structure, closeness to residential and nonresidential parents, and psychological distress in early and middle adolescence. *The Sociological Quarterly, 47*, 123-146.

Fields, J. (2003). Children's living arrangements and characteristics: March 2002. Current Population Reports, U.S. Census Bureau.

Fletcher, A. C., & Jefferies, B. C. (1999). Parental mediators of associations between perceived authoritative parenting and early adolescent substance use. Journal of Early Adolescence, 19, 465-487.

Flewelling, R.L., & Bauman, K.E. (1990). Family structure as a predictor of initial substance use and sexual intercourse in early adolescence. Journal of Marriage and the Family, 52, 171-181.

Fomby, P., & Cherlin, A. J. (2007). Family instability and child well-being. *American Sociological Review, 72*, 181-204.

Forehand, R., Miller, K. S., Dutra, R., & Chance, M. W. (1997). Role of parenting in adolescent deviant behavior: Replication across and within two ethnic groups. *Journal of Consulting and Clinical Psychology, 65*(6), 1036-1041.

Ginther, D.K., & Pollack, R.A. (2004). Family structure and children's educational attainment: Blended families, stylized facts, and descriptive regressions. *Demography, 41*, 671-696.

Gordon-Simons, L., Chen, L., Simons, R.L., Brody, G., & Cutrona, C. (2006). Parenting practices and child adjustment in different types of households: A study of African American families. *Journal of Family Issues, 27*, 803-825.

Grant, B. F., & Dawson, D. A. (1997). Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: Results from the national longitudinal alcohol epidemiologic survey. *Journal of Substance Abuse, 9*, 103-110.

Griffin, K. W., Botvin, G. J., Scheier, L. M., Diaz, T., & Miller, N. L. (2000). Parenting practices as predictors of substance use, delinquency, and aggression among urban minority youth: Moderating effects of family structure and gender. *Psychology of Addictive Behaviors, 14*(2), 174-184.

Griffin, K. W., Botvin, G. J., Scheier, L. M., Doyle, M. M., & Williams, C. (2003). Common predictors of cigarette smoking, alcohol use, aggression, and delinquency among inner-city, minority youth. *Addictive Behaviors, 28*, 1141-1148.

Hair, E.C., Moore, K.A., Garrett, S.B., Ling, T., & Cleveland, K. (2008). The continued importance of quality parent-adolescent relationships during late adolescence. J*ournal of Research on Adolescence, 18*, 187-200.

Hamilton, H. A. (2005). Extended families and adolescent well-being. *Journal of Adolescent Health, 36*, 260-266.

Haynie, D.L., South, S.J., Bose, S. (2006). The company you keep: Adolescent mobility and problem behavior. *Sociological Inquiry, 76*, 397-426.

Heard, H.E. (2007). The family structure trajectory and adolescent school performance: Differential effects by race and ethnicity. *Journal of Family Issues, 28*, 319-354.

Hemovich, V., & Crano, W.D. (2009). Family structure and adolescent drug use: An exploration of single-parent families. *Substance Use and Misuse, 44*, 2099-2113.

Hetherington, E.M., Bridges, M., & Insabella, G.M. (1998). What matters? What does not? Five perspectives on the association between marital transitions and children's adjustment. *American Psychologist, 53*, 167-184.

Hetherington, E. M., Cox, M., & Cox, R. (1982). Effects of divorce on parents and children. In M. E. Lamb (Ed.), Nontraditional Families (pp. 233-288). Hillsdale, NJ: Erlbaum.

Hill, M.S., Yeung, W.J., & Duncan, G.J. (2001). Childhood family structure and young adult behaviors. *Journal o f Population Economics, 14*, 271-299.

Hoffman, J. P. (2006). Family structure, community context, and adolescent problem behaviors. *Journal of Youth and Adolescence, 35*, 867-880.

Hoffman, J.P., Cerbone, F.G., & Su, S.S. (2000). A growth curve analysis of stress and adolescent drug use. *Substance Use and Misuse, 35*, 687-716.

Hoffman, J.P., & Johnson, R.A. (1998). A national portrait of family structure and adolescent drug use. *Journal of Marriage and Family, 60*, 633-645.

Jeynes, W.H. (2006). The impact of parental remarriage on children: A meta-analysis. *Marriage and Family Review, 40*, 75-102.

Jones, D.J., Zalot, A.A., Foster, S.E., Sterrett, E., & Chester, C. (2007). A review of child-rearing in African American single-mother families: The relevance of a co-parenting framework. *Journal of Child and Family Studies, 15*, 671-683.

Keller, T.E., Catalano, R.F., Haggerty, K.P., Fleming, C.B. (2002). Parent figure transitions and delinquency and drug use among early adolescent children of substance abusers. *American Journal of Drug and Alcohol Abuse, 28*, 399-427.

Kierkus, C.A., & Baer, D. (2002). A social control explanation of the relationship between family structure and delinquent behavior. *Canadian Journal of Criminology*, 425-458.

Kirby, J.B. (2006). From single-parent families to stepfamilies: Is the transition associated with adolescent alcohol initiation? *Journal of Family Issues, 27*¸ 685-711.

Kirby, J.B. (2002). The influence of parental separation on smoking initiation in adolescents. *Journal of Health and Social Behavior, 43*, 56-71.

Kowleski-Jones, L., & Dunifon, R. (2006). Family structure and community context: Evaluating influences on adolescent outcomes. *Youth & Society, 38*, 110-130.

Krohn, M.D., Hall, G.P., & Lizotte, A.J. (2009). Family transitions and later delinquency and drug use. *Journal of Youth and Adolescence, 38*, 466-480.

Krohn, M.D., Lizotte, A.J., & Perez, C.M. (1997). The interrelationship between substance use and precocious transitions to adult statuses. *Journal of Health and Social Behavior, 38*, 87-103.

Krohn, M.D., Stern, S.B., Thornberry, T.P., Jang, S.J. (1992). Self-report data: The measurement of family process variables: The effect of adolescent and parent perceptions of family life on delinquent behavior. *Journal of Quantitative Criminology, 8*, 287-315.

Lansford, J.E., Ceballo, R., Abbey, A., & Stewart, A.J. (2001). Does family structure matter: A comparison of adoptive, two-parent biological, single-mother, stepfather, and stepmother households. *Journal of Marriage and Family, 63*, 840-851.

Lansford, J.E., Malone, P.S., Castellino, D.R., Dodge, K.A., Pettit, G.S., & Bates, J.E. (2006). Trajectories of internalizing, externalizing, and grades for children who have and have not experienced their parents' divorce or separation.

Leiber, M.J., Mack, K.Y., & Featherstone, R.A. (2009). Family structure, family processes, economic factors, and delinquency: Similarities and differences by race and ethnicity. *Youth Violence and Juvenile Justice, 7*, 79-99.

Maccoby, E. E. & Mnookin, R. H. (1992). Dividing the Child: Social and legal dilemmas of custody. Cambridge, MA: Harvard University Press.

Mack, K.Y., Leiber, M.J., Featherstone, R.A., & Monserud, M.A. (2007). Reassessing the family-delinquency association: Do family type, family processes, and economic factors make a difference? *Journal of Criminal Justice, 35*, 51-67.

MacKinnon, D. P. (2008). *Introduction to statistical mediation analysis*. New York: Lawrence Erlbaum Associates.

MacKinnon, D.P., Fairchild, A.J., & Fritz, M.S. (2007). Mediation analysis. *Annual Review of Psychology, 58*, 593.

MacKinnon, D.P., Lockwood, C.M., Brown, C.H., Wang, W., & Hoffman, J.M. (2007). The intermediate endpoint effect in logistic and probit regression. *Clinical Trials, 4*, 499-513.

Maddahian, E., Newcomb, M.D., & Bentler, P.M. (1986). Adolescents' substance use: Impact of ethnicity, income, and availability. *Adv Alcohol Subst Abuse 5*, 63-78.

Manning, W.D., & Lamb, K. A. (2003). Adolescent well-being in cohabiting, married, and single-parent families. *Journal of Marriage and Family, 65*, 876-893.

McKinney, R. (2002). Ecological factors and their relationship to maternal reports of behavioral problems in African American adolescents. *Child Study Journal, 32*, 53-72.

McLeod, J.D., Kruttschnitt, C., & Dornfeld, M. (1994). Does parenting explain the effects of structural conditions on children's antisocial behavior? A comparison of blacks and whites. *Social Forces, 73*, 575-604.

McLoyd, V.C. (1998). Socioeconomic disadvantage and child development. *American Psychologist, 53*, 185-204.

McLoyd, V.C., Cauce, A.M., Takeuchi, D., & Wilson, L. (2000). Marital processes and parental socialization in families of color: A decade review of research. *Journal of Marriage and the Family, 62*, 1070-1093.

Michael, R.T. (2001). A lens on adolescence: The 1997 National Longitudinal Survey of Youth. In R.T. Michael (Ed.), *Social behavior: Adolescent behavior as adulthood approaches* (pp. 1-22). New York: Russell Sage Foundation.

Oman, R.F., Vesely, S.K., Tolma, E., Aspy, C.B., Rodine, S., & Marshall, L. (2007). Does family structure matter in the relationships between youth assets and youth alcohol, drug and tobacco use? *Journal of Research on Adolescence, 17*, 743-766.

Osborne, C. (2003/2004). Maternal stress and mothering behaviors in stable and unstable families.

Oxford, M. L., Harachi, T. W., Catalano, R. F., & Abbott, R. D. (2001). Preadolescent predictors of substance initiation: A test of both the direct and mediated effect of family

social control factors on deviant peer associations and substance initiation. *American Journal of Drug and Alcohol Abuse, 27*(4), 599-616.

Painter, G., & Levine, D.I. (2000). Family structure and youths' outcomes: Which correlations are causal? *The Journal of Human Resources, 35*, 3-549.

Peterson, J.L., & Zill, N. (1986). Marital disruption, parent-child relationships, and behavior problems in children. *Journal of Marriage and the Family, 48*, 295-307.

Raftery, A.E. (1993). Bayesian model selection in structural equation models. In K.A. Bollen & J.S. Long (Eds.) *Testing structural equation* models. Newbury Park, California: Sage, 163–180.

Raley, R. K., & Wildsmith, E. (2004). Cohabitation and children's family instability. *Journal of Marriage and Family, 66*, 210-219.

Rebellon, C. (2002). Reconsidering the broken homes/delinquency relationship and exploring its mediating mechanism(s). *Criminology, 40*, 103-135.

Richards, M. H., Miller, B. V., O'Donnell, P. C., Wasserman, M. S., & Colder, C. (2004). Parental monitoring mediates the effects of age and sex on problem behaviors among African American urban young adolescents. *Journal of Youth and Adolescence, 33*(3), 221.

Rodney, H.E., Tachia, H.R., & Rodney, L.W. (1999). The home environment and delinquency: A study of African American adolescents. *Families in Society: The Journal of Contemporary Human Services, 80*, 551-59.

Salem, D.A., Zimmerman, M.A., & Notaro, P.C. (1998). Effects of family structure, family process, and father involvement on psychosocial outcomes among African American adolescents. *Family Relations, 47*, 331-341.

Sandefur, G.D., & Wells, T. (1999). Does family structure really influence educational attainment? *Social Science Research, 28*, 331-357.

Scaramella, L. V., Conger, R. D., & Simons, R. L. (1999). Parental protective influences and gender-specific increases in adolescent internalizing and externalizing problems. *Journal of Research on Adolescence, 9*(2), 111-141.

Schwarz, G., 1978. Estimating the dimension of a model. *Annals of Statistics* 6(2), 461-464.

Simons, R.L., Lin, K., Gordon, L.C., Conger, R.D., & Lorenz, F.O. (1999). Explaining the higher incidence of adjustment problems among children of divorce compared with those in two-parent families. *Journal of Marriage and the Family, 61*, 1020-1033.

Smith, C., & Krohn, M.D. (1995). Delinquency and family life among male adolescents: The role of ethnicity. *Journal of Youth and Adolescence, 24*, 69-93.

Strohschein, L., (2005). Parental divorce and child mental health trajectories. *Journal of Marriage and Family, 67*, 1286-1300.

Substance Abuse and Mental Health Services Administration. (2009). *Results from the 2008 National Survey on Drug Use and Health: National Findings* (Office of Applied Studies, NSDUH Series H-36, HHS Publication No. SMA 09-4434). Rockville, MD.

Sun, Y. (2001). Family environment and adolescents' well-being before and after parents' marital disruption: A longitudinal analysis. *Journal of Marriage and Family, 63*, 697-713.

Thomas, G, Farrell, M.P., & Barnes, G.M. (1996). The effects of single-mother families and non-resident fathers on delinquency and substance abuse in Black and White adolescents. *Journal of Marriage and Family, 58*, 884-894.

Tillman, K. H. (2007). Family structure pathways and academic disadvantage among adolescents in stepfamilies. *Sociological Inquiry, 77*, 383-424.

Turner, H.A., Finkelhor, D., & Ormond, R. (2007). Family structure variation in patterns and predictors of child victimization. *American Journal of Orthopsychiatry, 77*, 282-295.

U.S. Census Bureau. (2005). Current population survey. Annual social and economic supplements. Washington, DC.

VanderValk, I., Spruijt, E., de Goede, M., Maas, C., & Meeus, W. (2005). Family structure and problem behavior of adolescents and young adults: A growth-curve study. *Journal of Youth and Adolescence, 34*, 533-546.

VanderValk, I., Spruijt, E., de Goede, M., Meeus, W., Maas, C. (2004). Marital status, marital process, and parental resources in predicting adolescents' emotional adjustment: A multilevel analysis. *Journal of Family Issues, 25*, 291-317.

Vanderwater, E.A., & Lansford, J.E. (1998). Influences of family structure and parental conflict on children's well-being. *Family Relations, 47*, 323-330.

Videon, T.M. (2002). The effects of parent-adolescent relationships and parental separation on adolescent well-being. *Journal of Marriage and Family, 64*, 489-503.

Walden , B., McGue, M., Iacono, W. G., Burt, S. A., & Elkins, I. (2004). Identifying shared environmental contributions to early substance use: The respective roles of peers and parents. *Journal of Abnormal Psychology, 113*(3), 440-450.

Williams, J.H., Auslander, W.F., Houston, C.A., Krebill, H., & Haire-Joshu, D. (2000). African American family structure: Are there differences in social, psychological, and economic well-being? *Journal of Family Issues, 21*, 838-857.

Wu, L.L. (1996). Effects of family instability, income, and income instability on the risk of a premarital birth. *American Sociological Review, 61*, 386-406.

Wu, L.L., & Thomson, E. (2001). Race differences in family experience and early sexual initiation: Dynamic models of family structure and family change. *Journal of Marriage and Family, 63*, 682-696.

APPENDIX A

Family Structure and Transitions

Response Format: Interview

Instructions: As you answer these next questions about who lives in your household, please tell us about the household and your permanent residence.

"Is [new household member] male or female?"

1 Male
2 Female

"What is [this person's] relationship to you?"

1 Wife	29 Grandmother (Biological or social)	65 Cousin-in-law
2 Husband	33 Grandfather (Biological or social)	66 Great-Grandmother-in-law
3 Mother	37 Great-Grandmother (Biological or social)	67 Great-Grandfather-in-law
4 Father	41 Great-Grandfather (Biological or social)	68 Roommate
7 Step-mother	45 Great Great Grandmother	69 Lover/partner
8 Step-father	46 Great Great Grandfather	70 Aunt (biological or social)
5 Adoptive mother	47 Granddaughter (Biological or social)	71 Great Aunt
6 Adoptive father	48 Grandson (Biological or social)	73 Great Uncle
9 Foster mother	49 Daughter (Biological)	72 Uncle (biological or social)
10 Foster father	50 Son (Biological)	74 Niece (biological or social)
11 Mother-in-law	51 Step-daughter	75 Step Niece (biological or social)
12 Father-in-law	52 Step-son	78 Nephew (biological or social)
13 Sister (FULL)	53 Adoptive daughter	79 Step Nephew (biological or social)
14 Brother (FULL)	54 Adoptive son	76 Foster Niece (biological or social)

15 Sister (HALF)	55 Foster daughter	80 Foster Nephew (biological or social)
18 Brother (HALF)	56 Foster son	77 Adoptive Niece (biological or social)
21 Sister (STEP)	57 Daughter of lover/partner	81 Adoptive Nephew (biological or social)
22 Brother (STEP)	58 Son of lover/partner	
23 Sister (ADOPTIVE)	59 Daughter-in-law	82 Female cousin (biological or social)
24 Brother (ADOPTIVE)	60 Son-in-law	83 Male cousin (biological or social)
25 Sister (FOSTER)	61 Grandmother-in-law	84 Other relative
26 Brother (FOSTER)	62 Grandfather-in-law	85 Other non-relative
27 Brother-in-law	63 Aunt-in-law	86 Great Grandson
28 Sister-in-law	64 Uncle-in-law	87 Great Granddaughter

APPENDIX B

Substance Use

Items and Response Categories

1. Have you ever smoked a cigarette?

2. Have you ever had a drink of an alcoholic beverage? (By a drink we mean a can or bottle of beer, a glass of wine, a mixed drink, or a shot of liquor. Do not include childhood sips that you might have had from an older person's drink.)

3. Have you ever used marijuana, for example: grass or pot, in your lifetime?

0 = No, 1 = Yes

APPENDIX C

Parental Monitoring

Source of items
The specific items are standard questions used widely by well-known researchers of the family (Hetherington, Cox, & Cox, 1982; Maccoby & Mnookin, 1992).

Items and Response Categories

1. How much does he/she know about your close friends, that is, who they are?
2. How much does he/she know about your close friends' parents, that is, who they are?
3. How much does he/she know about who you are with when you are not at home?
4. How much does she know about who your teachers are and what you are doing in school?

The responses were measured on a 5-point scale:
0 Knows Nothing
1 Knows Just a Little
2 Knows Some Things
3 Knows Most Things
4 Knows Everything

Scale Creation

The Parental Monitoring Scale was created for each of the four possible parental figures:

- Residential mother
- Residential father
- Non-residential biological mother
- Non-residential biological father
-

The responses to the four items were summed; scores could range from 0 to 16 points. Higher scores indicate greater parental monitoring (according to youth reports).

APPENDIX D

Parent-Youth Relationship

Source of items
Adapted from the IOWA Youth and Family Project (Conger & Elder, 1994).

Items and Response Categories

1. I think highly of him/her.
2. S/he is a person I want to be like.
3. I really enjoy spending time with him/her.

These responses were measured on a 5-point scale:
0 Strongly Disagree
1 Disagree
2 Neutral
3 Agree
4 Strongly Agree

4. How often does s/he praise you for doing well?
5. How often does s/he criticize you or your ideas? (reverse code)
6. How often does s/he help you do things that are important to you?
7. How often does s/he blame you for her problems? (reverse code)
8. How often does s/he make plans with you and cancel for no good reason? (reverse code)

These responses were measured on a 5-point scale:
0 Never
1 Rarely
2 Sometimes
3 Usually
4 Always

Scale Creation

The Parent-Youth Relationship Scale was created for each of the four possible parental figures:

- Residential mother
- Residential father
- Non-residential biological mother
- Non-residential biological father

The responses to the four items were summed; scores could range from 0 to 32(00) points. Higher scores indicate better relationship quality (according to youth reports).

APPENDIX E

Residential Stability

Parent Questionnaire (Wave 1):

"Next, I'd like you to think about all the different places [name of youth] has lived. By places we mean each house, apartment, or other type of residence even if they were all in the same neighborhood or city. Some people find the calendar useful when thinking about all these different residences. How many different places total, did [name of youth] live, from birth until [his/her] 12th birthday?"

Youth Questionnaire (Waves 2 and 3):

"Not including where you were living at the time of last interview, [street address from round 1], how many different addresses have you lived at for more than a month? Again, please don't count summer camp."

Vita

Sally Ann Mays was born on January 15, 1981 in Annapolis, Maryland. She graduated from Annapolis High School in Annapolis, Maryland in 1998. She received her Bachelor of Arts with a double major in Psychology and Mass Communications from Washington & Lee University in Lexington, Virginia in 2002, graduating Magna cum Laude. She began her graduate study in Clinical Psychology at Virginia Commonwealth University in 2005, and received the degree of Master of Science in December of 2007. Sally Mays is currently a doctoral candidate in the Clinical Psychology program at Virginia Commonwealth University, focusing on Adult Psychopathology. She is now completing her predoctoral internship training at the James Madison University Counseling and Human Development Center.